Adamson.

22102459433

HALF-YEARLY ABSTRACT

OF THE

MEDICAL SCIENCES.

JANUARY—JUNE,

1858.

PRINTED BY J. E. ADLARD, BARTHOLOMEW CLOSE.

THE

HALF-YEARLY ABSTRACT

OF THE

MEDICAL SCIENCES:

BEING

A PRACTICAL AND ANALYTICAL DIGEST OF THE CONTENTS OF THE PRINCIPAL BRITISH AND CONTINENTAL MEDICAL WORKS PUBLISHED IN THE PRECEDING SIX MONTHS:

TOGETHER WITH A

SERIES OF CRITICAL REPORTS ON THE PROGRESS OF MEDICINE AND THE COLLATERAL SCIENCES DURING THE SAME PERIOD.

EDITED BY

W. H. RANKING, M.D. CANTAB.

PHYSICIAN TO THE NORFOLK AND NORWICH HOSPITAL,

AND

C. B. RADCLIFFE, M.D. LOND.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS IN LONDON;
PHYSICIAN TO THE WESTMINSTER HOSPITAL; AND LECTURER ON MATERIA MEDICA AT THE WESTMINSTER SCHOOL OF MEDICINE.

Apparatu nobis opus est, et rebus exquisitis undique et collectis, arcessitis, comportatis.
CICERO.

VOL. XXVII.

JANUARY—JUNE, 1858.

LONDON:

JOHN CHURCHILL, NEW BURLINGTON STREET.

EDINBURGH: MACLACHLAN & CO.

DUBLIN: FANNIN & CO.

MDCCCLVIII.

Vol. XXVIII will appear on the 1st of January, 1859.

Books, &c., for notice, to be sent as soon as published (carriage free) to Mr. Churchill, New Burlington Street; or to Dr. Radcliffe, 4, Henrietta Street, Cavendish Square.

WELLCOME INSTITUTE LIBRARY
Coll. welMOmec
Call No. Ser W1 1089

LIST OF BRITISH AND FOREIGN PERIODICALS REFERRED TO IN 'THE HALF-YEARLY ABSTRACT.'

BRITISH.

Annals of Anatomy and Physiology.
Association Medical Journal.
British and Foreign Medico-Chirurgical Review.
Dublin Quarterly Journal of the Medical Sciences.
Dublin Medical Press.
Dublin Hospital Gazette.
Edinburgh Medical Journal.
Edinburgh New Philosophical Journal.
Glasgow Medical Journal.
Indian Annals of Medical Science.
Journal of Psychological Medicine.
Lancet.
Liverpool Medico-Chirurgical Journal.
London Medical Examiner.
Medical Circular.
Medical Times and Gazette.
Microscopical Journal.
Pharmaceutical Journal.
Statistical Journal.

AMERICAN.

American Journal of the Medical Sciences.
American Monthly Journal.
Canada Medical Journal.
Charleston Medical Journal and Review.
Montreal Monthly Journal.
New York Journal of Medicine.
North American Medico-Chirurgical Review.
North-Western Medical Journal.
Philadelphia Medical Examiner.

FRENCH.

Annales de Chimie et de Physique.
,, d'Hygiène Publique.
,, Medico-Psychologique.
,, d'Oculistique.
,, des Sciences Naturelles.
Archives Générales de Médecine.
Bulletin de l'Académie de Médecine.
Comptes Rendus.
Gazette des Hôpitaux.
Gazette Hebdomadaire de Médecine et de Chirurgie.
Gazette Médicale de Paris.
Journal de Pharmacie et de Chimie.
L'Union Médicale.

GERMAN.

Annalen der Chemie und Pharmacie.
Archiv für Physiolog. und Patholog. Chemie und Microskopie.
Canstatt's Jahresbericht.
Deutsche Klinik.
Monatsbericht der Akademie zu Berlin.
Müller's Archiv für Anatomie, &c.
Schmidt's Jahrbücher.
Vierteljahrschrift für die Praktische Heilkunde.
Zeitschrift für Rationelle Medicin.

ITALIAN.

Annali Universali di Medicina.

NOTICE TO CORRESPONDENTS.

The Editors request that all communications be forwarded (free) to Mr. CHURCHILL, *New Burlington Street, London.*

The Editors are compelled to remind their American correspondents, that no parcels are taken in, unless the entire charge be paid upon them.

CONTENTS OF VOL. XXVII.

PART I.—MEDICINE.

I.—*General Questions in Medicine.*

(a) *Hygiène.*

ART.		PAGE
1.	Investigation of Epidemics by Experiment. *Dr. Richardson*	1
2.	On the study of Epidemic Diseases. *Dr. Greenhow*	3
3.	On the injurious effects of Underground Kitchens. *Dr. Fred. J. Brown*	6
4.	On the influence of Sewer Emanations *Dr. Herbert Barker*	7
5.	On Drainage and Water-supply in connexion with Public Health. *Dr. Snow*	14

(b) *Acute Diseases.*

6.	Contributions to the Etiology of Continued Fever. *Dr. Murchison*	1
7.	On the Eruption of Scarlet Fever. *M. Trousseau*	19
8.	On Amyloid Degeneration of the Liver in Yellow Fever. *Dr. S. Jackson*	2
9.	Epidemic Fever characterised by Erythematic Pharyngitis. *Dr. Rochester*	21
10.	Acute Rheumatism treated by large doses of Opium. *Dr. Sibson*	22
11.	On the early stages of Inflammation. *Mr. Joseph Lister*	25
12.	On the treatment of Acute Inflammatory Disease. *Dr. Fincham*	30
13.	On the nature and treatment of Inflammation. *Dr. Cameron*	32
14.	Propagation of the "Distemper" from Animals to Man. *Professor Krause*	34
15.	On the Murrain. *Professor Simonds*	35

(c) *Chronic Diseases.*

16.	On the antagonism of Ague and Consumption. *Dr. Cockle*	37
17.	The effects of Ague and Quinine as seen in the Urine. *Dr. W. A. Hammond, Dr. H. M. Stewart,* and *Dr. Ranke*	37
18.	On the advantage of large doses of Quinine in Ague. *Dr. John Short*	40
19.	On the use of Quinine in Intermittents with or without "preparatory measures." *Dr. Nichols*	40
20.	On the treatment of Chronic Rheumatism. *Dr. Inman*	41
21.	On Difficult Breathing in Scorbutus. *M. Perrin*	42
22.	On the coexistence of Elephantiasis and Leprosy. *Mr. Waring*	43
23.	On the connexion between Elephantiasis and Fever. *Mr. Waring*	44

II.—*Special Questions in Medicine.*

(a) *Concerning the Nervous System.*

24.	The Legal Doctrine of Responsibility in Insanity. *Dr. Forbes Winslow*	48
25.	Insanity among prisoners in Penitentiaries *M. Sauze*	49
26.	To what degree is the Mind affected in cases of Apoplexy and Paralysis. *Dr. M'Creedy*	52

ART.		PAGE
27.	Case of Hydrocephalus treated by Puncture. *Mr. Lawrence*	55
28.	On the general Paralysis of the Insane. *Mr. Linas*	56
29.	On Facial Paralysis as a sign of Cerebral Hæmorrhage. *M. Trousseau*	58
30.	The effect of Galvanism upon the augmentation of hearing which may exist in Facial Paralysis. *M. Landouzy*	58
31.	The Æsthesiometer. *Dr. Sieveking*	59
32.	The Pathology of Convulsions. *Dr. Reynolds*	60
33.	Case of Hysteria simulating Hydrophobia. *Dr. M'Gugin*	62
34.	On the use of Oxide of Zinc in Epilepsy. *Dr. Radcliffe*	62
35.	On the use of Lactate of Zinc in Epilepsy. *Dr. Herpin*	66
36.	On the use of Phosphate of Zinc in Epilepsy. *Dr. Barnes*	67
37.	A case of Epilepsy in which treatment by Tracheotomy was adopted. *Dr. Ogle*	67
38.	A case in which death happened in an Epileptic Fit after Tracheotomy. *Dr. Ormerod*	74
39.	On the treatment of Chorea. *M. Trousseau*	75

(b) *Concerning the Respiratory System.*

40.	Tracheotomy in Croup in the Children's Hospital at Paris. *M. André*	76
41.	Cold applications in Pneumonia, &c. *Dr. Niémyer*	77
42.	Asthenic Pneumonia and its treatment by Quinine. *Dr. Corrigan*	77
43.	The arrest of Pulmonary Tuberculosis. *Dr. Flint*	78
44.	Treatment of Phthisis, &c., by "special exercises." *Dr. Henry G. Davis*	82
45.	The "specific treatment" of Consumption. *Dr. Cotton*	83
46.	The action of cod-liver oil in Chest Affections. *Dr. Edward Smith*	85
47.	Local influences in Spasmodic Asthma. *Dr. Hyde Salter*	87
48.	On Intercostal Neuralgia. *Dr. A. W. Nichols*	88
49.	The Chest Goniometer. *Dr. Scott Alison*	89
50.	A new Percussion-hammer. *Dr. Vernon*	89

(c) *Concerning the Circulatory System.*

51.	A peculiar case of Leukhæmia. *Dr. N. Friedrich.*	91
52.	Remarks on seventy cases of Hypertrophy of the Heart. *Dr. Van der Byl*	93
53.	A new remedy for Palpitation. *Dr. Kölliker*	93
54.	Death from Plugging the Mitral Orifice. *Dr. Van der Byl*	94

(d) *Concerning the Alimentary System.*

55.	Curious case of Gastro-cutaneous Fistula and observations on similar cases. *Dr. Murchison*	95
56.	On Inflammatory and Obstructive Diseases of the Cæcum and on the abuse of Violent Purgatives. *Dr. Rogers*	98
57.	Sequel to a case of Obstruction of the Bowels in which paracentesis was performed. *Sir Henry Cooper*	100
58.	Guarana in Chronic Diarrhœa. *Dr. Hervé*	101

(e) *Concerning the Genito-Urinary System.*

59.	On Albuminuria in Typhus and Typhoid Fevers. *Dr. George Johnson*	102
60.	On Diuresis occurring in Acute Renal Dropsy. *Dr. George Johnson*	103
61.	On the tests for Sugar in Urine. *M. Béhier*	103
62.	On Pertussal Glucosuria. *Dr. Gibb*	104
63.	On Sugar as an article of Diet in Saccharine Diabetes. *Dr. William Budd, Dr. Williams, Dr. Burd, Dr. Corfe,* and *Dr. Bence Jones*	105
64.	On "Surgical Diabetes." *Mr. Erichsen*	117
65.	On Moveable Kidneys. *Dr. Hare*	118

(f) *Concerning the Cutaneous System.*

ART.		PAGE
66.	Mucilage of Starch applied externally in Acute Skin Diseases. *Dr. Belcher*	121
67.	Treatment of Herpes by the Local Application of Rottlera Tinctoria. *Dr. William Moore*	121
68.	Nest-cells in relation to Epithelial Cancer. *Dr. Andrew Clark*	122

PART II.—SURGERY.

I.—*General Questions in Surgery.*

(a) *Concerning Inflammation.*

69.	A form of Acute Inflammation of Lymphatic Glands. *Mr. Paget*	124

(b) *Concerning Tumours.*

70.	On the Painless Extirpation of Cancerous Growths. *Dr. James Arnott*	125
71.	On the transcurrent application of the Actual Cautery in White Swelling. *M. Notta*	128

(c) *Concerning Wounds and Ulcers.*

72.	Powdered Chlorate of Potass as an Application to Ulcers. *Mr. Jonathan Hutchinson*	130

(d) *Concerning Fractures and Dislocations.*

73.	On Resection in Compound Dislocations. *Dr. Hamilton*	130
74.	On Bending and Partial Fracture of the Long Bones. *Dr. Hamilton*	131

(e) *Concerning Operations.*

75.	The After-treatment of Surgical Operations. *Dr. Broadbent*	133

(f) *Concerning Instruments.*

76.	A new Polyptome. *Messrs. Bigg and Millikin*	134

(g) *Concerning Anæsthetics.*

77.	The advantages of a proper apparatus for Anæsthetic Inhalations. *M. Devergie*	135

II.—*Special Questions in Surgery.*

(a) *Concerning the Head and Neck.*

78.	Sequel to a case in which the skull was Trephined for Rupture of the Middle Meningeal Artery fifteen years ago. *Mr. Cock*	137
79.	On the Formation of Artificial Pupil by Galvanic Cautery. *M. Tavignot*	140
80.	On Dislocation of the Crystalline Lens. *Mr. White Cooper*	140
81.	Vascular Tumours of the Orbit treated by Injection of Tannin. *Mr. Haynes Walton*	141
82.	On Cysts of the Orbit. *Mr. Poland*	142

ART. PAGE

83. On Protrusion of the Eye in connexion with Enlargement of the Thyroid Gland. *Mr. Poland* 143
84. On the treatment of Tinea ciliaris. *Mr. Streatfeild* 143
85. On Discoloration of the Conjunctiva with Nitrate of Silver. *Mr. Streatfeild* . 144
86. On a rare form of Corneitis requiring Extirpation of both Eyes. *Mr. Lawrence* 145
87. On some points in the Pathology of Glaucoma. *Mr. Hulke* . . . 146
88. A new operation for Artificial Pupil. *Mr. Critchett* 148
89. On Iridectomy. *Mr. Wharton Jones* and *Dr. Mackenzie* . . . 149
90. A peculiar disease of the Retina. *Dr. Bader* 149
91. The Cataractous Eye Compressor. *Mr. Solomon* 151
92. On Micropia caused by the use of Belladonna. *Dr. Cornaz* . . . 152
93. On Anchylosis of the Stapedio-vestibular articulation, based upon 136 dissections. *Mr. Toynbee* 155
94. On Enlarged Tonsils. *Mr. Paget* 157
95. On Lesions of the Epiglottis. *Dr. Horace Green* 159
96. Rupture of the Trachea from a fall. *Dr. Atlee* 159
97. On the treatment of Suppurated Cervical Glands. *Mr. Paget* . . . 160

(b) *Concerning the Chest, Abdomen, and Pelvis.*

98. A new bandage for fracture of the Clavicle. *Dr. Chisholm* . . . 161
99. Removal of the entire body of the Scapula. *Mr. Walter* . . . 162
100. Obliteration of the superior Vena Cava. *Dr. Oulmont* . . . 163
101. Case in which a foreign body was removed from beneath the heart. *Dr. E. S. Cooper* 164
102. Two cases of Intestinal Obstruction in which the descending colon was opened. *Mr. Curling* 167
103. On Abdominal Subcutaneous Emphysema. *Dr. O'Ferrall* . . . 171
104. Ligature of the External Iliac. *Dr. Wood* 174
105. The prevention of rigor after Catheterism by Tincture of Aconite. *Mr. Long* 175
106. The treatment of Involuntary Seminal Emissions. *Mr. Solly* . . . 176
107. On the causes of death after Lithotomy. *Mr. Bryant* 177
108. On Lithotritic Instruments in cases of Enlarged Prostate. *Mr. Coulson* . 178
109. A new operation for Hydrocele. *M. Carron du Villards* . . . 181

(c) *Concerning the Upper Extremity.*

110. Case of simultaneous dislocation of both shoulder-joints. *Dr. W. H. Van Buren* 182
111. A new Splint for cases in which the elbow-joint has been excised. *Mr. Heath* 184
112. Division of the Tendon of the Triceps in long-standing dislocations of the elbow. *Mr. Fergusson* 187

(d) *Concerning the Inferior Extremity.*

113. Of pain and weariness in the lower limbs of persons having Flat-foot. *Mr. Paget* 188
114. Excessive dilatation of the blood-vessels of the right inferior extremity. *Mr. Adams* 189
115. The Subcutaneous operation on Varicose Veins. *Mr. Henry Lee* . . . 191
116. Chronic Hydrarthrosis of the Knee-joint treated by Iodine injections. *Dr. M'Donnell* 193
117. On Excision of the Knee-joint. *Mr. Humphrey* 194
118. Excision of the Os Calcis by a new method. *Mr. Erichsen* . . . 195
119. On the treatment of In-growing Toe-nail. *Mr. James Long* . . . 197

PART III.

MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

(a) *Concerning Pregnancy and Parturition.*

ART. PAGE

120. On the Membrana Decidua which surrounds the Ovum in Tubal Gestation. *Dr. Robert Lee* 199
121. The excitation of fœtal movements by cold. *Dr. Aveling* . . 201
122. On Menstruation during Pregnancy. *Dr. Elsässer* . . . 201
123. Case of Pregnancy where Menstruation had been absent for some years. *Dr. O C. Gibbs* 202
124. Hæmorrhage in early Pregnancy. *Dr. J. Henry Bennet* . . 204
125. On intra-uterine fractures. *Dr. Herbert Barker* . . . 207
126. On Cross-presentations. *Dr. Spieth* 208
127 Case of Turning by External Manipulation. *Dr. Grenzer* . . 213
128. Case of Cæsarian section. *Dr. Greenhalgh* 213
129. The effects of chalybeate waters upon Lactation. *Dr. Martin* . . 214
130. Of Belladonna as arresting the secretion of milk. *Mr. Blythman* . . 214
131. On the substitutes for woman's milk. *Dr. Routh* . . . 215

(b) *Concerning the Diseases of Women.*

132. On so-called Hysterical Pain. *Dr. Inman* 217
133. Laudanum dressings in painful affections of the Uterus. *M. Aran* . 217
134. Complete Inversion of the Uterus of 12 years' standing successfully treated. *Dr. Tyler Smith* 218
135. Obstinate Menorrhagia arrested by Iodine injections. *Dr. Savage* . . 219
136. Obstinate Menorrhagia arrested by Steel injections. *Dr. B. Breslau* . 220
137. Cupping the interior of the Uterus. *Dr. Storer* . . . 221
138. Autopsy of a woman whose Uterus had been removed 30 years previously. *Dr. Goddard* 223
139. Three cases of Vesico-vaginal Fistula. *Mr. J. Baker Brown* . . 224
140. On Coagula formed in the veins during the puerperal state. *Dr. Grailly Hewitt* 227
141. Aphthous Fungus on the Female Nipple. *Dr. Küchenmeister* . . 229

(c) *Concerning the Diseases of Children.*

142. Three cases of Infantile Apoplexy. *Dr. Wythes* . . . 229
143. On Diphtheria. *Dr. Camps* 231
144. On Cholera Infantum. *Dr. E. H. Parker* . . . 233
145. Modification of the operation for Imperforate Anus. *Mr. Redfern Davies* . 234

REPORTS ON THE PROGRESS OF THE MEDICAL SCIENCES.

I.—*Report on Medicine.*

1. *Dr. Pickford* on Hygiene 241
2. *Dr. Inman* on the Fibrine of the Blood and its significance in Disease . 242
3. *Dr. Christison* on the changes which have taken place in the constitution of Fevers 248
4. *Dr. Adams* on Rheumatic Gout 259
5. *Dr. Habershon* on Purpura and its connexion with Splenic Disease . . 265
6. *Dr. Wilkes* on Idiopathic Fatty Degeneration, and on Arcus Senilis . 268

PAGE

7. *Dr. Gull* on Abscess of the Brain 271
8. *Mr. Lobb* on some of the more obscure forms of Nervous Affection . 275
9. *Dr. Noble* on the Human Mind, its relation to the Brain, &c. . . 277
10. *Dr. Beale* on the Urine, Urinary Deposits, &c. . . . 279
11. *A Fellow of the Royal College of Surgeons* on the Unity of Medicine . 280
12. *Mr. Gant* on the evil results of over-feeding cattle . . . 280

II.—*Report on Surgery.*

1. *Mr. W. Adams* on Subcutaneous Surgery 282
2. *Mr. Holthouse* on Squinting, &c. 285
3. *Mr. Critchett* on a new mode of treating Glaucoma . . . 287
4. *Mr. Bowman* on the treatment of Lachrymal Obstructions . . 292
5. *Mr. Edwards's* case of Aneurism of the Innominata treated by Pressure on the distal side 297
6. *Mr. Henry Thompson* on Enlarged Prostate 299

III.—*Report on Midwifery and Diseases of Women and Children.*

1. *Dr. Tyler Smith* on Obstetric Medicine 302
2. *Dr. Lee* on the Speculum 307
3. *Dr. Montgomery* on the reciprocal sympathies between the Bladder and Uterus 307
4. *Dr. Mackenzie* on the Obstetric use of Galvanism . . . 313

IV.—*Report on Physiology.*

1. *Dr. Richardson* on Coagulation of the Blood 316
2. *M. Claude Bernard* on the variations of colour in Venous Blood . . 323
3. *Mr. Hennessey* on certain pathological characters of the Blood-corpuscles . 324
4. *M. Demarquay* on some points illustrative of the source of animal heat . 326
5. *Dr. Mosler* on the influence of water-drinking on the Metamorphosis of the System 327
6. *Dr. Harley* on the Physiological action of Strychnia and Brucia . . 328
7. *Drs. Kölliker* and *Pelikan* on the effects of Upas antiar . . . 330
8. *Dr. Wm. A. Hammond* on the effects of Injecting Urea, &c., into the Blood . 331
9. *Dr. Harley* on the Histology of the Supra renal Capsules . . . 332
10. *Dr. Murtyn* on the Function of the Thyroid Body . . . 333
11. *Dr. Marcet* on the immediate principles of Human Excrements in disease . 335
12. *Mr. Savory* on the Effect upon the Mother of poisoning the Fœtus . . 336
13. *Dr. Oldham* on Hernia of the Ovary, and periodical enlargement of this organ . 338
14. *Dr. Marcet* on the immediate principles of Human Excrements in health . 340

V.—*Report on Materia Medica and Therapeutics.*

1. *Mr. James Farrall* on Transfusion of Blood in the horse in Adynamic Diseases 343
2. *Mr. Field, Drs. Fuller* and *Harley* on Nitrate of the Oxyde of Glycyl (Nitro-Glycerine or Glonoin) 346
3. *Dr. Garrod* on the influence of Liquor potassæ, &c., on the Therapeutic properties of Henbane, Belladonna, Stramonium 353
4. *Dr. Bryan* on Cannabis indica as a Diuretic 354
5. *Mr. Waring* on the Neem or Margosa Tree 355
6. *Dr. W. A. Hammond* on the physiological effects of Alcohol and Tobacco . 356
7. *M. Briquet* on the absorption of Medicated Enemata . . . 357
8. *Drs. Behrend* and *Sieber* on the Medicinal use of Sugar . . . 357
9. *Mr. Spencer Wells* on the Administration of Cod-liver Oil, medicated or not, in Capsules 358
10. *Drs. Kölliker* and *Pelikan* on the Tanghinia venenifera . . . 359
11. *M. Berthé* on Pepsine Lozenges 360

HALF-YEARLY ABSTRACT

OF

THE MEDICAL SCIENCES,

&c. &c.

PART I.

PRACTICAL MEDICINE, PATHOLOGY, & THERAPEUTICS.

SECT. I.—GENERAL QUESTIONS IN MEDICINE.

(A) HYGIENE.

ART. 1.—*Investigation of Epidemics by experiments.*
By Dr. RICHARDSON.

(*British Med. Journal*, March 13, 1858.)

IN this paper, which was read before the Epidemiological Society, March 1, 1858, Dr. Richardson commences by pointing out the weakness of the present system of epidemiological study, which sought after results by trying to descend from the general to the particular. This method lets pass simple laws, which lie at the root of all inquiries. It is painful to say as a fact, yet it is a fact proper to be said, that the researches at present so laboriously conducted do not lead to such proofs of unanimity or to such positiveness of science as might, on *à priori* reasoning, be expected from them. The present modes of research may bring out negatives. The present modes of research may bring out partially accepted positives, *i. e.*, sufficient of positive evidences to satisfy a section of men; but as yet they have failed to educe such demonstrations, that all who are educated to the same mark can read off the same phenomena by the same process of thought and inductive learning.

Dr. Richardson next proceeds to point out carefully such experiments as might be reasonably instituted for the purpose of investigating particular epidemic disorders, especially smallpox, scarlet fevers, and typhus; commenting also on the care which should be

taken in the selection of the animal subjected to experiment, and showing that, in inquiries relating to the three special diseases named above, the pig is the animal to be selected, as one more easily susceptible of those diseases than other members of the inferior animal kingdom. Thence, leaving proposition for the history of experiment itself as a means of investigation, the author explains what in recent times had been done towards the production of some diseases artificially, and the information derivable from this form of investigation. He follows up this argument with a minutely recorded account of some experiments performed by himself, in which all the characteristics of typhus, symptomological and pathological, were produced by the introduction of alkalies into the system. He showed, further, that the typhous condition which could be induced by the injection of animal putrid matters was coincident with and dependent on the development of a superalkaline state of the blood; and he connects the pathology of "putrid fever," so called, with conditions analogous to those which had been thus artificially produced.

In a connected and simple mode of argument, the question is next put, Whether, when the virus of a disease is introduced into a healthy animal, so as to reproduce that disease, the symptoms and the pathological changes are due to an absolute reproduction of the virus itself, and to the actual presence of such virus; or whether the virus acted by setting up such new changes in the body that a product generated secondarily, and differing in character from the original poison, was the cause of the symptoms? He (Dr. Richardson) was inclined to the latter view, and gave some experimental evidence in support of his position. He admits, at the same time, that further experiment was required, and argues that, until this point was defined, no sound progress could be made in the study of epidemics.

It is impossible, in an abstract, to give more than the briefest outline of a communication written in so condensed a style, and opening up for consideration so many subjects, each differing in detail, yet having but one object. But the final propositions laid before the Society are as follows:—That, by experiment, it might be ascertained:

1. In what excreta the poisons of certain epidemic diseases are located.

2. By what surfaces of the body such poisons may be absorbed, so as to produce their specific effects.

3. Whether the virus of a disease, in reproducing its disease in a healthy body, acts in the development of the phenomena by which the disease is typified, primarily or secondarily; *i.e.*, by its own reproduction and presence, or by the evolution of another and different principle or product.

4. Whether climate, season, and other external influences, modify the course of epidemics, by producing modifications of the epidemic poisons, or modifications in the system of persons exposed to the poisons.

Art. 2.—*On the study of Epidemic Diseases, illustrated by the Pestilences of London.* By Dr. Greenhow.

(*Lancet*, Nov. 28, 1857.)

In this paper, which was read before the Epidemiological Society, Nov. 2, 1857, Dr. Greenhow begins by stating that it is but an imperfect knowledge of any epidemic disease that can be acquired from its study, however careful, in a single visitation, or even in a succession of visitations in the same place. Perhaps even the study of a single form of epidemic disease would leave many points obscure which might be rendered clear by its comparison with other diseases of the same class. In the study of an epidemic visitation, it is further necessary to investigate the condition of the public health anterior to the outbreak, and to note whether this at once returns to its usual state afterwards. Many cosmical phenomena, the state of the weather, peculiarities of seasons, and other evident circumstances, will also deserve notice. Hence, likewise, it will be useful to inquire into the influence, if any, which these several circumstances have produced upon the lower forms of organised beings, and particularly upon domestic animals and cultivated vegetables. Epidemic diseases have varied greatly in type and character from century to century, and this very clearly not because they have been excluded by means of restrictive precautions, but because of some change unfavorable to their development in the *crasis* of the people, or in the conditions amidst which they exist. To these peculiarities, therefore, the student of epidemiological science must likewise direct his attention. Nor must the attention be exclusively devoted to these positive phenomena; many negative facts will also demand investigation. Thus the singular immunity from surrounding pestilence occasionally enjoyed by the inhabitants of particular districts, by particular races, or by particular classes of persons, well deserve consideration. Let us now proceed to illustrate these suggestions by a reference to the epidemics of London. These are evidently divisible into two classes, viz.:

1. Epidemics apparently depending upon some purely atmospheric influence, and which comprise the single form of febrile disorder so well known under the name of influenza.

2. Epidemic pestilences depending also in a great measure upon atmospheric influences, but requiring likewise some definite condition of persons or places, peculiar to each form, for their full development. Under this head will be included the black death, sweating sickness, plague, dysentery or alvine flux, and cholera, also a form of alvine flux. These epidemics have all been remarkable for their irregularly-periodical character and their successive appearance, each having been almost exclusively predominant for a certain time.

In studying the history of these pestilences, it is observable that they have all possessed certain common characters. Each has been attended by some peculiarity of season; and the prevalence of fog, haze, or mist, during the visitation, has been recorded in regard to

most of them. Not the least important point in the history of London pestilences is the absence of pestilence during the eighteenth century and its reappearance in the nineteenth century; and this, notwithstanding a general improvement in the public health. The general death-rate of London, which is now 25 in the 1000, exceeded 35 in the 1000 a century since. It is not less interesting and remarkable that pestilence has now reappeared in exactly the same form in which it took leave of our forefathers, about the close of the seventeenth century. The cholera of our times, which has now, on three separate occasions, carried off some thousands of the inhabitants of London, is identical with the *dysenteria incruenta* of Willis, and the *diarrhœa colliquativa* of Morton, which, on many occasions, carried off in the autumns of the last quarter of the seventeenth century as many people from the then population of the metropolis as would be represented by the deaths of 11,000 or 12,000 persons in the present London. On one or two occasions, the deaths were so numerous as to be only duly represented by those of 18,000 or 20,000 persons in the present day.

It will be interesting here to pause for a brief space, and contrast the mortality caused by former pestilences with that produced by cholera in our own times. The means of accurately estimating the mortality caused by the black death and sweating sickness, do not exist; but there are reliable data from which the mortality of plague may be computed so as at least to approximate to truth. The plague visitation of 1625 raised the mortality of London for that year to more than five times the average amount; and the visitation of 1636 raised it to two-and-a-half times the death-loss of the ordinary healthy years of that period. Supposing the cholera visitations of 1849 and 1854 to have been equally fatal to the inhabitants of London, the deaths, which were 68,755 in 1849, and 73,697 in 1854, would have been 266,885 for the earlier, and 133,442 for the later outbreak. The total mortality of the last great plague year, that which immediately preceded the great fire, was little short of 100,000, whereof nearly 70,000 died of the pestilence. The general death-rate of London is now 25 in the 1000. The general death-rate of London in that calamitous year was 253 in 1000—that is, fully one fourth of the inhabitants were numbered with the dead. The plague death-rate (included in the general death-rate) was 178 in each thousand of the living. This was, however, very unequally distributed, the mortality being fearfully high, even when compared with this to us dreadful mortality, in some districts, and in others comparatively low. Sixty thousand deaths occurred in nine weeks. In the week ending September 19th, upwards of 8000 persons perished: 3000 of them in one night, which was probably the most fatal night that ever occurred in London. The cholera death-rates of our own day, alarming as they were at the time, sink into insignificance when contrasted with these death-losses of the seventeenth century. They are even insignificant when compared with the average death-rate of analogous disease at the close of that great epidemic epoch. The average annual death-rate of cholera, diarrhœa, and dysentery, for the ten years 1846-55, including the last two visitations of cholera, and all

the years in which diarrhœa was most fatal, was 257 in the 100,000 persons. For the ten years, 1681-90, when the deaths from this class of diseases had already begun to decrease, the average annual death-rate from analogous diseases, was 477 in the 100,000 persons.

The apparently sudden outbreak of epidemic diseases is one of their commonest attributes, and has been often quoted as an argument in favour of their importation. This suddenness is, however, only apparent; for, with few exceptions, epidemic outbreaks have been preceded by sufficient indications of the existence of an epidemic constitution, tending towards, and more or less gradually passing into, the form of the approaching disease. Plague was preceded by pestilential fever, into which it again passed at its decline; and the visitation of cholera in 1832 was preceded by a distinct, although small, increase in the fatality from analogous affections in London. Forty-eight deaths from cholera morbus were recorded in the London bill of mortality for 1831, although the epidemic form of cholera did not show itself until the early part of 1832. Thus it would appear that the magazine was ready prepared here, even if the spark which fired it came from abroad. Probably all the forms of pestilence to which the author has referred have been only malignant forms of diseases constantly present in London. Plague was not absent from London for twenty-five years anterior to the great fire. It even occasioned a very considerable mortality on many occasions that are not usually spoken of as pestilential periods. So likewise in our day do deaths from cholera, indistinguishable from epidemic cholera excepting for its less rapid course, annually occur, although, like plague, it only appears in its epidemic and pestilential character and more distant intervals. On this point, however, the author guards himself from misapprehension. He does not deny the importation of cholera any more than he denies the contagiousness of plague. The question must still be viewed as an unsettled one, requiring much careful inquiry for its elucidation.

The chief conclusion deducible from the facts here put together is, that of the several forms of epidemic disease which have at different periods visited London, influenza has maintained its precise character from century to century, because it is independent of the extrinsic condition of the population it attacks. Black death, sweating sickness, plague, and cholera, whether in the seventeenth or nineteenth century, have appeared in succession, and then disappeared because they have required for their development some definite but temporary condition, either of the human subject or of his place of abode. They have in turn appeared, and they have in succession departed from London, not because they have, at the one time, been imported with bales of cotton or by means of the sick, or, at the other, been effectually excluded by repressive precautions; but because at the one period the organic matter out of which plague or cholera is brewed abounded, and at the other period has been wanting. The exciter may, perhaps, have sometimes come to us over-sea, but it would have failed to light up the epidemic had it not here met with materials upon which it could react.

Art. 3.—*On the injurious effects of Under-Ground Kitchens.* By Dr. Frederick J. Brown, of Chatham.

(*Sanitary Review*, April, 1858.)

The darkness and damp inseparable from under-ground apartments, and the exhaustion occasioned to those who occupy such apartments by the frequent ascent and descent of stairs, are the reasons which Dr. Brown urges for using the basement-story for cellar-purposes simply, and not for kitchens.

"The servant-girls of London exemplify remarkably well these evil effects of damp; also the injurious results of deprivation of the solar rays. Their etiolated condition, and their breathlessness, show the anæmia (the impoverished state of blood) under which they suffer; and the functions peculiar to women are carried on imperfectly, or are absolutely suspended: hence the headache, the pains in the side, the palpitation, and the dropsical ankles, so frequently witnessed in this class. These circumstances are well known to the profession, and are especially familiar to those members who practise in the metropolis. Organic disease of the heart is originated by these causes in some instances.

"The unhealthiness of under-ground tenements is shown by the statistics of the city of Liverpool; the subterranean inhabitants being in a much worse sanitary condition than the supraterranean population.

"Thus, then, the effects of darkness are disease, and not merely delicacy of structure; and the morbid condition is aggravated by the damp that is associated with the darkness.

"The next consideration is the exhaustion attendant upon the frequent ascent and descent of stairs. The necessity of answering the front door, and of ascending to the upper part of the house in the performance of domestic duties, obliges the servant to undergo much fatigue in running up and down stairs. The carrying of a burden up stairs is attended by a very much greater expenditure of strength than is the case in carrying it along a level. Girls that are breathless, owing to their anæmic condition, and oftentimes dropsical about the ankles, cannot afford the increased exertion that the circumstances necessitate: it is torture to them.

"The value of land in London causes houses to rise vertically rather than to increase in dimensions horizontally. The same reason, namely, high value of land, is slowly but surely operating on the style of building in country towns. It will inevitably, if persisted in, bring about an approximation in the death-standard between the towns of small size and the great urban populations of this country.

"It is the duty of physicians to point out the evil effects of subterranean apartments, and to impress upon the minds of builders, and upon the public generally, the injurious consequences of damp, dark kitchens, so placed that a multiplicity of stairs must be used in the performance of daily domestic duties.

"In provincial towns, the wives of artisans and others of the work-

ing classes, occupying houses with basement kitchens, suffer much from exhaustion due to the necessity of frequently ascending the stairs. A woman gets up from her confinement pale and weak, from want of generous living, and perhaps, also, blanched by hæmorrhage: she is obliged to go up and down stairs some score of times in the day, and the consequence is a prolonged convalescence, with palpitation and other distressing symptoms, and sometimes even displacement of organs such as the womb.

"Besides these ill effects upon women, the children are apt to meet with accidental falls down the stairs, and to harass their mothers by the watching necessary to prevent such accidents. Darkness and damp produce unfavorable effects upon growing children; and scrofula, and rickets, and consumption, and swelled bellies, are the result.

"In the name, then, of humanity, let a stop be put to this sepulture of human beings, and to this treadmill exercise of women rendered weak and blanched by their premature interment."

Art. 4.—*On the influence of Sewer Emanations.* By Dr. Herbert Barker.

(*Sanitary Review*, April, 1858.)

Dr. Herbert Barker has lately been making some inquiries as to the influence on the health of animals, of exposure for a long time to air rendered impure by the diffusion through it of emanations from sewers. The full details of these experiments are recorded in the essay 'On Malaria,' written for the Fothergillian Prize of the Medical Society of London for 1858; but, as the subject has important sanitary bearings, Dr. Barker has published in the 'Sanitary Review' an outline of his researches.

The gaseous emanations from sewers have been subjected, to a certain extent, to chemical analysis. There have been thus detected in them sulphuretted hydrogen gas, sulphide of ammonium, carbonic acid, nitrogen, sometimes sulphuretted hydrogen, and various organic living products. Dr. Odling has recently pointed out the diffusion of an alkaline gas through sewer air.

For the purpose of experiment, Dr. Barker selected a large cesspool, which received, together with the animal excreta, the liquid refuse of an inhabited house. The cesspool was full, and had at all times so bad a smell, that during hot weather the vicinity was scarcely tolerable. The inhabitants of the house, however, had not for many years suffered from any epidemic; nor did the near presence of the sewer seem to affect their general health.

Dr. Barker had built, close by and nearly over this sewer, a small room. Two gutta percha tubes, one inch in diameter, were carried down into the cesspool through its upper wall, and terminated in two large inverted funnels a few inches above the surface of the sewage matter. The other ends of the gutta percha tubes were in the small room, and were so constructed that they could be opened or closed at pleasure. By a bellows attached to the free end of one or other of

the tubes, he was enabled at any time to draw off the sewer air and subject it to examination. He did this on numerous occasions—at times when the weather was very hot and the neighbourhood of the sewer most offensive—at times when the temperature was very low and the place inodorous. As a general rule, the sewer gas yielded neither acid nor alkaline reaction, but sometimes the reaction was alkaline. At all times, mixed with the common air, carbonic acid gas, sulphuretted hydrogen, or sulphide of ammonium, were detectable. When the reaction was alkaline, ammonia was evidenced. He could detect no other foreign products in the sewer air. He tested for evidence of cyanogen compounds, without any affirmative indication.

When this inquiry had progressed for several weeks, he tried the influence of sewer air on animals exposed to it for a long time. For this purpose, he had made a chamber of wood and glass, with a cubic measurement of 5832 cubic inches. One of the gutta percha tubes was introduced into at the lower part; from the upper part he carried a tube in the form of a small chimney. At the point where the long tube piping from the chamber made a right angle upwards, it expanded into a conical box, in which a lamp was placed, so as to create when alight a constant upward draught. The whole played well. When the chamber was closed and the lamp arranged, a current of the sewer air was kept steadily passing through it. Dr. Barker also attached a pair of bellows to the chamber, in such a way that he could at any time remove the air by working them, and subject it to investigation, without interfering either with the experiment which might be progressing. In the experiments to be related, the animals operated on were placed in the chamber, were fed by a funnel whenever necessary, and were subjected to the sewer gases as is now to be described.

Experiment 1.—Dr. Barker placed a young dog in the box at twelve o'clock noon, and kept a current of the cesspool air passing constantly through the chamber by means of the chimney draught. Half an hour after the exposure, he became very uneasy and restless; he vomited, and had a distinct rigor. In the course of the day he suffered from diarrhœa and tenesmus. After twelve hours' exposure, he was allowed fresh air; but on the next day, when he was removed altogether, he was exhausted. The diarrhœa and vomiting had ceased, but he refused food for some hours. However, he soon recovered.

The air breathed in the chamber by this animal yielded evidence of sulphuretted hydrogen.

Experiment 2.—On placing another dog in the box connected with the cesspool, and subjecting him to a free current of the foul air, similar results occurred. In ten minutes the creature became very uneasy, and soon afterwards suffered from vomiting and diarrhœa. After these effects, however, he suffered but very little, although kept in the chamber for five hours. After removal he quickly recovered.

Experiment 3.—A mouse placed in a cage was let down into the cesspool, to within three inches of the surface of the contained soil. The cesspool was freely open above, so that there was no exclusion of air. The animal was also well plied with food. After this exposure for four days, the animal seemed lively and well, and took his food heartily. On the next day he was found dead.

Experiment 4.—Another dog was subjected to the cesspool air during a period of twelve days, with such brief intermissions only as sufficed for rapid cleansing of the box. Throughout the time food was liberally supplied him. The results were as follow:

During the first day the animal was restless and uneasy, and refused food. On the second day vomiting came on, and was repeated frequently during the day. In the afternoon there was diarrhœa, accompanied by thirst and restlessness. On the third day, in the morning, he had marked shiverings, and refused all food. The feet were somewhat swollen. Towards evening he slept, but had a peculiar kind of tremor with each inspiration. On the fourth day he took food, and drank some milk. He slept during the forenoon, but was restless towards evening. On the fifth and sixth days he was much the same. On the seventh day he was restless and relaxed, and ate no food. On the eighth day he ate but little food, and was restless; he was by this time thinner and feeble. On the ninth day he had eaten no food for two days, and seemed very ill and miserable. He was therefore taken from the box while it was cleansed, and offered food, which he ate voraciously and to repletion. When removed from the box, his skin was preternaturally hot and dry; he was very weak, and his gait feeble. On the tenth day his appetite was better, but he vomited and had diarrhœa in the evening. On the eleventh day he was very restless, and had but little appetite; and on the twelfth, the symptoms being much the same, he was removed to his kennel. He walked feebly; but soon after his liberation ate heartily of food. He continued very thin and weak for six weeks after his removal from the cesspool air.

Having thus ascertained in some measure what was the effect of long exposure to the vitiated air of the cesspool, Dr. Barker subjected the animals in the same chamber to certain percentages of such of the individual gases as had been found at various times emanating from the cesspool.

Sulphuretted Hydrogen. Experiment 5.—Dr. Barker placed a puppy in the box as before, and introduced 100 cubic inches of sulphuretted hydrogen, or 1·714 per cent. The breathing became instantly laboured. In two minutes the animal fell insensible on his side, and in another half minute he was dead without a struggle.

An hour after death, the right side of the heart was found filled with fluid blood to distension. In the left side the blood was partly coagulated. The fluid blood coagulated quickly when received into a glass. The corpuscles of the blood were natural. The lungs were congested in the lower lobes and posteriorly. Above, they were pale and free from congestion. The stomach and abdominal viscera were healthy. The vessels on the surface of the brain were slightly congested.

Experiment 6.—Dr. Barker placed a puppy in the box as before, and drove in twenty-five cubic inches of sulphuretted hydrogen, or 0·428 per cent. In three minutes the animal fell on his side insensible. In this condition he lay for an hour, without any indication of pain, but with catching respiration. At the end of an hour he ceased to breathe.

Directly after death the lungs were found generally pale, and were free from congestion. The right side of the heart was filled to distension with blood. The left side contained fluid blood. Blood coagulated in eight minutes after being removed from the body. It was dark in both cavities, and the corpuscles were irregular. They floated about freely between the slips, but not one was natural. Some were crenated at the edges, and thus

shrunken and broken up. The stomach presented nothing unnatural. The vessels of the brain were congested.

Experiment 7.—At thirty-seven minutes past four p.m. a dog was placed in the box, and twelve cubic inches of sulphuretted hydrogen gas, or 0·205 per cent., were slowly introduced. Within a minute he fell on his side, and was seized with tremors. The action of the heart became irregular, and within four minutes the respiration had apparently ceased. This cessation of respiration continued for about two minutes, when he began to breathe heavily. The respiration next became very quick and catching. Afterwards the quick respiration came on in paroxysms, with an occasional long-drawn inspiration. In three quarters of an hour from the commencement, the respirations were 112 per minute, rising sometimes to 120; they then became deeply stertorous, as in apoplexy. Dr. Barker removed this dog from the box at fifteen minutes past six, having exposed him to the gas one hour and thirty-eight minutes. The respirations were at this time stertorous, the limbs were rigid, and the head was drawn backwards. The respiration became gradually more feeble and catching, as if solely diaphragmatic, with a kind of hiccup. The body was universally cold. The respiration then became very peculiar, consisting of two short inspirations to one expiration; and at fifteen minutes past two a.m. the dog died, nine hours and thirty-eight minutes after the commencement of the experiment.

On examination twenty hours after death, there was moderate cadaveric rigidity. The brain was found slightly congested externally, but presented no bloody points. The lungs were collapsed, dark in patches, and congested. The heart was enormously distended, and was remarkable for being excessively loaded with separations of fibrine. The right auricle, pulmonary artery, and the left auricle, were literally distended with fibrinous concretions, to the almost entire exclusion of red blood. The right and left ventricles contained a large quantity of dark clotted blood, but there were some separations of fibrine in these cavities also. The fibrinous concretions in the right auricle and pulmonary artery were of pure whiteness. Those on the left side were red and striated, very closely resembling muscular fibre. The liver and spleen were congested. The kidneys were normal. The stomach, viewed externally, had a vascular appearance; but internally, the mucous surface was natural. There was no serous effusion into the abdominal cavity, nor any particular inflation of the alimentary canal with gaseous matters.

Experiment 8.—Another dog was put into the box, into which there were introduced twelve cubic inches of sulphuretted hydrogen, or 0·25 per cent. He suffered from violent tremors and shortness of breathing. When nearly an hour had elapsed, he appeared better, and was removed at the end of five hours, not labouring under any morbid symptom.

A jackdaw was placed in the chamber. Through the air of the box were diffused nine cubic inches of sulphuretted hydrogen, or 0·154 per cent. Within two minutes the bird essayed to vomit, and almost instantly afterwards was purged. He was incessantly restless, and the breathing was remarkably hurried and catching. After inhaling the gas for ten minutes, his movements became so feeble that it was with difficulty he stood. The pupils, at first contracted, soon became widely dilated. The beak was set widely open; and the tongue, dry and dark at the top, was protruded at each inspiration. After remaining in this condition for an hour and a half, he was removed from the box, and soon recovered.

A dog was placed in the box at 8 a.m., and nine cubic inches of sulphuretted hydrogen, or 0·154 per cent., were introduced. Within two minutes the respiration became quickened, with reeling. For a quarter of an hour he was

restless, and walked with difficulty. His movements were very like those resulting from intoxication. This effect gradually subsided; and he was taken out of the chamber in three hours, merely enfeebled.

Another dog was placed in the chamber. When he was composed to his new situation, six cubic inches of sulphuretted hydrogen, or 0·102 per cent., were introduced. At first there was watering of the eyes, followed by signs of thirst, muscular debility, and slight drowsiness. In half an hour the breathing had become hurried, and an hour later he suffered from violent diarrhœa; the breathing became more rapid, and the tremors more intense. Three hours after his first introduction the respiration was still hurried, and the heart beat so rapidly that it could not be counted with precision. He was now again purged. Removed from the chamber, he soon recovered in the pure air.

Another jackdaw was put into the box as before, with six cubic inches of sulphuretted hydrogen, or 0·102 per cent. Within two minutes the bird commenced to vomit (a curious symptom to observe in birds), and he was also freely purged. These symptoms continued for twenty minutes; afterwards the respiration was very hurried. After keeping him in the box for two hours, without much further modification of symptoms, he was removed, and soon recovered.

Experiment 9.—A dog was introduced into the box as before, and three cubic inches of sulphuretted hydrogen, or 0·056 per cent., were driven in. He suffered almost at once from tremors of the muscles. The respiration was also quickened, and the heart-beat was extraordinarily rapid. At the same time he seemed sufficiently lively. After keeping him in the box for two hours, he was let out. The pulsations of the heart could be heard at a short distance from his body, the action was so intense. After removal, he was freely purged for a few hours, but eventually got quite well.

Sulphide of Ammonium.—This was diffused in vapour from its solution into the chamber in each experiment.

Experiment 10.—A large dog was placed in the box, and six drachms of sulphide of ammonium were introduced. He soon suffered from lacrymation, restlessness, and vomiting. The vomited matters gave off copious white fumes. There was a peculiar harsh noise during expiration. In five hours he had recovered, and was then removed.

Experiment 11.—A dog was placed in the box, and half an ounce of sulphide of ammonium. For ten minutes he laboured under excitement with lacrymation. He also had some tremor and tenesmus. The symptoms subsided, and he was removed from the box in five hours.

Experiment 12.—A jackdaw was placed in the box, and half an ounce of sulphide of ammonium was introduced. The bird vomited, and the vomited matters were of a yellow colour; the beak was separated; the tongue was dry and dark coloured at the top. He was much purged, and the ejected matters were liquid. He expanded both his wings to support his body. The respiration became quicker, and he died in two hours.

After death the blood remained fluid; the lungs were congested; the brain was congested. The other viscera were healthy.

Experiment 13.—Dr. Barker placed a dog in the box with one ounce of sulphide of ammonium. He soon laboured under profuse lacrymation and salivation, and became very restless. Within five minutes tenesmus showed itself. The respiration became hurried and difficult. He died within ten minutes.

Twenty-four hours after death the right auricle and ventricle were found filled with quite liquid blood. The left cavities contained a small quantity of

fluid blood. The venæ cavæ were distended with fluid blood. Both lungs were deeply congested, and of a dark colour. The vessels of the brain were congested. The stomach was distended with food and an offensive gas. It presented a reddened appearance of the mucous surfaces. The other viscera were of healthy appearance.

Carbonic Acid. EXPERIMENT 14.—A hedgehog was placed in the box, and 88 cubic inches (1½ per cent.) of carbonic acid were introduced. For a quarter of an hour he remained curled up; he then breathed more quickly—sometimes irregularly, and occasionally drew a long inspiration. Soon afterwards he was very restless—running about and trying to escape. He was also freely purged. He became quieter afterwards, and was removed in four hours and a half, upon which he recovered.

Dr. Barker made afterwards several experiments with carbonic acid gas, exposing the animals subjected to experiment to 5, 2½, and 1½ per cent. of that gas. The effects were mainly referable to impeded respiration, but in one instance diarrhœa was the result.

REMARKS.—These experiments have brought before us the effects of the compound impure cesspool atmosphere: and they have shown the specific influence of certain particular gaseous poisons, which alone, or in company, emanate from the cesspool, and the decomposing vegetable heap, to pollute filthy localities.

1. In the first place, it cannot be doubted that cesspool emanations are, when steadily inhaled, poisonous. The dogs subjected to the cesspool air were all more or less affected. The symptoms were those of intestinal derangement followed by prostration, heat of the surface of the body, distate for food, and those general signs which mark the milder forms of continued fever common to the dirty and ill ventilated homes of the lower classes of men.

2. The peculiar poisonous action of sulphuretted hydrogen is well illustrated in these experiments. The symptoms produced even by the same dose differed in degree in different animals of the same class, the one animal dying from the effects of a dose which was insufficient to do more in the other than produce dangerous symptoms.

The symptoms arising from sulphuretted hydrogen are well marked, and may be considered specific. Vomiting and diarrhœa are the first and most prominent symptoms. The latter is painful; the vomiting is difficult and exhausting, and eventually there is insensibility and entire prostration. When the dose of the poison is at first very large, the prostration and the insensibility are immediate.

The pathology following such poisoning is definite. If the death takes place quickly, the pathological evidence is the evidence of asphyxia; if the poison is long breathed in diluted doses, the pathology is modified, the fibrine of the blood is separated, and the heart is slowly clogged up with fibrinous depositions.

The dose of sulphuretted hydrogen required for the production of the specific symptoms is tolerably well shown. It is clear that so little as 0·428 per cent. is a dose absolutely and rapidly poisonous; that so little as 0·205 per cent. may be fatal; and lastly, that so minute a dose as 0·056 per cent. is sufficient to produce serious symptoms, eructations, tremors, rapid and irregular respiration, extraordinary rapidity of the pulse, and diarrhœa.

3. The effects of sulphide of ammonium, while they differ from those produced by sulphuretted hydrogen, are in themselves sufficiently distinct. Vomiting is a symptom of this poison, without purging, but occasionally with tenesmus. When the dose is very large, death occurs speedily, with quickened and laboured respiration. When the administration is kept up in small doses for many hours, the symptoms are those of excited circulation and thirst, followed by rapid sinking. The surface of the body, from being unusually hot, becomes unusually cold. The tongue is protruded, dry, dark, and cold. There are constant jactitation of the limbs, subsultus tendinum, feeble, quick pulse, and ultimately death, which may occur even some hours after the animal has been removed from the poison and placed in the open air.

The pathology after death from sulphide of ammonium differs from that which follows the administration of sulphuretted hydrogen. When the exhalation is prolonged, and the death is gradual, the alimentary mucous surface is changed. The mucous coat is injected and softened in patches. The blood shows no fibrinous separations, but is dark, and either feebly coagulated or entirely fluid. The blood-corpuscles are also much dissolved and changed, and there is congestion of fluid blood in all the vascular organs.

The dose of sulphide of ammonium required for the production of serious symptoms is difficult to calculate; and this, from the fact, that when the vapour of sulphide is diffused through a confined space, in which an animal is breathing, there is quickly a deposit on the floor of the chamber of the white bicarbonate of ammonia. This deposition is so rapid, indeed, that the effect of the poison is very quickly lost, so that constant renewal is required, and the calculation of dose is necessarily rendered obscure, since the animal is not breathing the same dose for any two minutes together.

4. In poisoning by carbonic acid gas, the respiration suffers first; there is prostration; and if the inhalation is prolonged, diarrhœa. The effects vary with the dose: the instances given above are the effects of a small long-continued dose. In larger proportions, insensibility, coma, and asphyxia, are the results.

The pathology varies. While congestion of the lungs is commonly noted as the leading pathological sign, it is clear that when the gas has been long inhaled in small quantities, this rule is not without its exception; for, in one case, the lungs were found of bright vermilion colour, and free from congestion.

The effect of carbonic acid gas on the blood is definite; it does not produce the fibrine deposit like sulphuretted hydrogen, nor the complete fluidity of sulphide of ammonium. But there is feeble coagulation, and sometimes a dark colour even in the arterial blood. If this gas be breathed continuously for a long time in a very minute dose, the brain suffers from congestion of blood, and the mucous membrane of the stomach is injected and reddened.

When the gas has been breathed for a long time in small quantities, so as not to produce insensibility, the effect does not pass off so speedily on placing the animal in the open air as is generally believed. In one experiment with carbonic acid, the animal, after being exposed for two hours to an atmosphere in which he breathed from the first

two per cent. of carbonic acid, was left (not apparently suffering much) with pure air entering freely into his chamber. Yet he died after all.

The smallest dose of carbonic acid required to produce dangerous symptoms, cannot be determined absolutely from the experiment of placing an animal in a closed chamber and introducing the gas, inasmuch as the gas is also streaming off from the animal itself. Dr. Barker thinks, however, that the inference is quite fair, that from one to two per cent. of this gas is sufficient, when long inhaled, to produce decided symptoms of imperfect oxidation of the blood, and all the after prostration incident to such interference with the primary act and principle of life.

The symptoms which have thus been noticed as resulting from the inhalation of sulphuretted hydrogen, sulphide of ammonium, and carbonic acid, are sufficient to account for the effects arising from cesspool effluvia, without seeking for any further product from such emanations. Comparing the experiments with cesspool air with those in which separate gases were employed, the inference seems clear, that the symptoms arising from the inhalation of the cesspool atmosphere were due mainly to the presence of a small amount of sulphuretted hydrogen, which gas was always present. If the experiments with the cesspool air be placed side by side with those in which sulphuretted hydrogen, in the proportion of 0·056 per cent., was administered by inhalation, the analogy between the two sets of results will be sufficiently unmistakeable.

Art. 5.—*On Drainage and Water-supply in connexion with public health.* By Dr. Snow.

(*British Med. Journal*, Feb. 20, 1858.)

In a paper read before the Epidemiological Society, February 10th, 1858, Dr. Snow said, that the increasing use of water-closets had a tendency to pollute the rivers of the country more and more; and a still greater evil attending the general adoption of water-closets was, that they caused the demand for such an enormous quantity of water, that the springs and wells did not suffice, and the polluted rivers had generally to be resorted to for the supply; whilst the sewage was diluted to such a great extent that it was impracticable to apply it profitably as liquid manure. It was the author's opinion, that the absence of drainage, and its defective condition, were injurious to health only by the contamination they caused to pump-wells and other supplies of water; and that, when the health of the community was improved by improved drainage, either in town or country, it was by the amendment which was effected in the drinking water of the locality. He believed also that a gravel soil was more salubrious than clay, because organic matters were usually oxydised in passing through the gravel, before reaching the pump-wells. He considered that the opinion was erroneous which attributed the illness caused by absence or imperfection of drainage to effluvia given off into the air. Whenever he had been able to separate the effluvia from real causes of disease, he had found an absence of effect. The Fleet Ditch, when open, did not cause an increase of cholera in its neighbourhood; for

the returns of the Registrar-General showed a very low mortality in the subdistrict through which it flowed. A statistical inquiry was made into the effects of the tidal ditches about Jacob's Island, Bermondsey, in the cholera of 1849; and it was found that the mortality was only increased among the people who drank the water of these ditches. Mr. Glaisher had attributed to the effluvia from the Thames an aggravation of the cholera in 1854; but the seven river-side subdistricts supplied by the New River Water Company, had every one of them a low mortality from this complaint: taking them altogether, the mortality was only half that of the whole metropolis. One or two subdistricts, situated by the south side of the Thames, but supplied chiefly with water from Thames Ditton, had also a very low mortality; whilst districts at a distance from the river, but supplied with impure water, had a high mortality. The fact that persons who worked amongst grease, bones, skins, and intestines, enjoyed a longer average duration of life than the rest of the population, also strengthened the position that it was not by offensive effluvia that bad drainage was injurious.

Dr. Snow had in previous papers been able to show the great influence of the supply of impure water on the prevalence and mortality of cholera. He was now able to show, from tables compiled and calculated from the returns of the Registrar-General, that the nature of the water-supply had a notable effect on the mortality in times when cholera was not present. That part of London which is situated in the county of Surrey is supplied by two water companies. Formerly, the water of both of these companies was polluted with the sewerage of London; and the mortality of the districts they supplied was greatly above that of the rest of the metropolis. One of these companies changed its source of supply to Thames Ditton, in the beginning of 1852; and immediately the relative predominance of the mortality of the districts it supplied was diminished. In July, 1855, the other company also changed its source of supply to near Hampton: and in that very quarter the mortality of that part of London situated in the county of Surrey fell for the first time below that of the rest of the metropolis, and has remained so ever since. He had not the means of ascertaining all the diseases which were diminished by the improvement in the water-supply; but he found, from the weekly returns of the Registrar-General, that the mortality of diarrhœa and typhus was greatly lessened.

The author recommended iron tanks, of uniform size, charged with some deodorising substance, as a substitute for water-closets; the tanks, when full, to be replaced by empty ones. The water-supply of towns should be from springs or deep wells at a distance. The shallow pump-wells in towns should be closed for domestic use; and in country places where pump-water must be used, the wells should not be sunk near the houses.

The part of the Thames which at present most concerned the public health was that near Hampton and Thames Ditton; that part situated in London being never in a better condition, in a sanitary point of view, as hardly anybody ever used the water, except a portion of the population on board ship. The question of diverting the

sewage of London from the river he considered to be one of taste, and he would not attempt to decide whether it would be worth the cost.

(B) ACUTE DISEASES.

ART. 6.—*Contributions to the etiology of Continued Fever; or, an investigation of various causes which influence the prevalence and mortality of its different forms.* By CHARLES MURCHISON, M.D., L.R.C.P., Assistant-Physician to King's College Hospital and to the London Fever Hospital.

(*Proceedings of Royal Med. and Chir. Society*, vol. ii, No. 1, 1858.)

The subject of this paper is an investigation into the various causes which influence the prevalence and mortality of the different forms of continued fever. The materials consist principally of an analysis of 6628 cases of continued fever which had been admitted into the London Fever Hospital in the ten years during which the distinctions had been recorded between typhus, typhoid, relapsing fever, and febricula. The results thus arrived at are compared with the statistical data which the author had obtained from many of the principal hospitals in England, Scotland, and Ireland, and from various published records. The subject is discussed under the following heads.

A. *Prevalence of continued fever.*

I. The various epidemics of continued fever which have prevailed in Great Britain and Ireland during the present century.

II. Which are the forms of continued fever of which these great epidemics have been composed?

III. The influence of months and seasons of the year on the prevalence of the different forms of continued fever.

IV. The influence of sex.

V. The influence of age, as shown by a calculation of the mean age of each of the different forms of fever, and by ascertaining the number of cases in each quinquennial period of life.

VI. The influence of occupation and station in life on the prevalence of the different forms of fever.

VII. The localities of London in which each form of fever is most prevalent, as shown by the localities from which the 6628 cases admitted into the London Fever Hospital had been derived.

VIII. Overcrowding, with deficient ventilation, and destitution as causes of fever.

IX. Putrid emanations from decomposing organic matter in drains, cesspools, churchyards, &c., and organic impurities in drinking-water.

X. The contagiousness of the different forms of fever.

XI. The influence of recency of residence in large towns as a predisposing cause of fever.

B. *Mortality from continued fever.*

I. The rate of mortality from fever in the London Fever Hospital, as compared with that of eleven other hospitals.
II. The rate of mortality in the different forms of fever.
III. The influence of months and seasons of the year on the mortality of the different forms of fever.
IV. The influence of sex.
V. The influence of age.
VI. The influence of station in life.
VII. The influence of recency of residence in large towns.

The paper terminated with the following conclusions:

1. Typhus and relapsing fever occur at irregular intervals, and often simultaneously, as wide-spread epidemics. They then gradually disappear, and both of them, but especially the latter, may be absent for years from those places where, during the epidemics, they are usually the most prevalent.

2. Typhoid fever does not occur in such wide-spread epidemics. In certain places it is never absent, and its prevalence varies but little from year to year. When outbreaks of it occur in other situations, these are always of the most local and circumscribed character.

3. Typhus and relapsing fever are quite independent of the season of the year; whereas typhoid fever is almost invariably most prevalent during the autumn, and it has been observed to be especially prevalent in seasons remarkable for their high temperature.

4. Sex has no influence over the prevalence of continued fever, nor over that of any of its forms.

5. Typhoid fever is pre-eminently a disease of childhood and adolescence, at which periods of life we know that there is a marked proneness to enteric affections. Less than one seventh of the cases of typhoid fever are above thirty years of age. Typhus and relapsing fever exhibit no such predilection for youth. Of typhus, one half, and of relapsing fever, one third, of the cases are above thirty.

6. Typhus and relapsing fever are the appanage of poverty and destitution, and seldom or never occur amongst the wealthy, except from direct contagion. Typhoid fever attacks both poor and rich without distinction.

7. In large cities, typhus and relapsing fever are for the most part limited to those localities remarkable for the overcrowding of their inhabitants; and in country districts they are seldom or never met with, except when directly imported. Typhoid, on the other hand, occurs alike in the centre and suburbs of cities, in the crowded hovels of the poor, and in the spacious mansions of the rich, and also in isolated houses and hamlets in the country, without any traceable sources of contagion.

8. When fever breaks out in a house or locality, it seldom or never happens that some of the cases are typhus and others typhoid; but typhus and relapsing fever occur not unfrequently together.

9. Cases of what has been called "febricula" may co-exist along

with any of the three other forms, but especially with typhus and relapsing fever. Most of them are either mild varieties of some of these, or dependent upon some derangement of digestion, or other non-specific causes.

10. Overcrowding and destitution appear to be the essential causes of typhus and relapsing fever, and to be capable of generating them *de novo;* while there is no evidence that they have any such influence over the production of typhoid fever.

11. There are many circumstances which tend to the belief that the emanations from decaying organic matter, or organic impurities in drinking water, or both of these causes combined, are capable of generating typhoid fever; but there is no authenticated evidence whatever to prove that such causes can give rise to typhus or relapsing fever.

12. There are some grounds for believing that a combination of the causes mentioned in the last two paragraphs may occasionally, although very rarely, generate a disease intermediate in its character between typhus and typhoid, or may (to speak perhaps more correctly) cause typhoid fever to assume some of the characters of typhus; but such cases cannot be used as an argument in favour of the identity of the poisons of the two diseases, for, first, instances are not wanting of two of the exanthemata coexisting in the same individual; and, secondly, if a known poison generates one train of symptoms, and a second poison another, a combination of the two poisons will generate a combination of the two trains of symptoms, without its being warrantable to conclude that the poisons in the first two instances were identical.

13. Typhus is eminently contagious. Typhoid fever is also contagious, but in a more limited degree, and possibly through a different medium. Again, typhus has in no instance been proved to communicate typhoid, nor typhoid to communicate typhus. An attack of either confers an immunity from future attacks of itself, but not of the other.

14. Recency of residence increases the liability to typhoid; scarcely, if at all, that to typhus.

15. The great majority of the cases of relapsing fever have been Irish, and of these a large proportion had but recently arrived in London. There seems reason for believing that fever imported from Ireland as "relapsing" may gradually pass into typhus.

16. Relapsing fever offers a marked contrast to typhus and typhoid in the small mortality which it occasions.

17. In comparing the mortality from continued fever at different times and places, it is essential to take into consideration the form of fever which has prevailed. If this be not done, the comparison is valueless.

18. The small mortality from continued fever constantly observed in Ireland, along with other circumstances, renders it probable that in that country a fever more or less allied to the relapsing, or to febricula, is more common than in Britain.

19. Season of the year has no influence over the mortality of any of the forms of fever.

20. In all of the fevers there is not much difference in the mortality of the two sexes.

21. Typhus is least fatal between the ages of ten and twenty, the mortality at that period of life being under five per cent. Above twenty, the mortality increases with the age, until of those above fifty considerably more than one-half die. The mortality from relapsing fever appears to be influenced by age in a similar manner. In typhoid fever, on the other hand, in no period of life is the mortality under $12\frac{1}{2}$ per cent.; and although, as in typhus, the rate of mortality increases with the age, it does so in a less degree.

22. The mortality from typhus is greater amongst the very poor than amongst those in better circumstances. Typhoid fever is equally mortal in all classes.

23. Recency of residence increases the mortality from, as well as the liability to, typhoid fever, but has no such influence over typhus.

24. Typhus and relapsing fever are strongly assimilated in the causes which give rise to them, if the specific poison of the two be not actually the same. Typhoid fever, on the contrary, appears to be a perfectly distinct affection, dependent upon totally different causes.

25. The facts which have been adduced in reference to the mode of origin of the different forms of fever deserve the serious attention of those intrusted with the care of the public health, for it is manifest, that should they be confirmed by subsequent observation, they must have an important bearing on the subject of hygiene.

Art. 7.—*On the Eruption of Scarla'ina.*

By Prof. Trousseau.

(*Gaz. des Hôpitaux*, No. 86, 1857; and *Med. Times and Gaz.*, April 17, 1858.)

The eruption appears in some patients four or five hours after the fever of invasion has set in, and does so very rarely after the first day. The cases in which the eruption is said to appear only on the third day must be quite exceptional, and are mostly to be explained by the defective examination of the practitioner and friends. It is generally on the face that we seek for the first manifestation of an eruption, and it is there we find it in rubeola or variola; but in scarlatina we should search for the earliest traces on the trunk, the belly, and bend of the thigh. It may be found there thirty-six hours before it exhibits itself upon the face and neck, and hence a cause of error in the date of its appearance.

The duration of the eruption is very uncertain, bearing, in this respect, no analogy to that of variola and rubeola. Commencing on the first day, it may still be very vivid on the twelfth or fourteenth, although generally it becomes paler towards the eighth or ninth. In simple cases it lasts five or six days only. It is by no means so uniform and constant in character as represented in books. When severe and confluent it has the appearance of a tincture applied to the whole surface, but in the more simple cases it consists in a multitude of minute, round, red points completely separated from each other, and differing entirely from the spots in measles. The peculiar red rash of scarlatina is also accompanied by a miliary eruption,

which, even when not visible to the naked eye, feels to the touch like shagreen. It consists in minute vesicles, which in thirty-six or forty-eight hours become filled with a lactescent fluid, and is very seldom absent in confluent scarlatina. If we examine a scarlatina eruption with a magnifying glass, we may be easily convinced it is not of one uniform colour as in erysipelas, but consists in elevations that resemble an excessively close eczema.

It is the tongue, however, which presents the most specific appearance in scarlatina, and is, perhaps, as special as is the eruption in variola. The first day there is nothing peculiar about it, but the next, if the patient has been sick, it is of a deep green, or yellow colour, the point and edges being of an excessively bright red. When there has been no vomiting, it is of a milky white at its posterior part. Towards the third day the redness still further increases, and from the fourth to the fifth all the pasty appearance disappears. The tongue, now of a scarlet red, is swollen, painful, covered with projecting papillæ, and peels by friction. Towards the seventh or eighth day it becomes smoother, but preserves its redness. By the ninth day the epithelium becomes evidently reproduced, but the tongue scarcely recovers its normal appearance before the twelfth day.

M. Trousseau protests against the doctrine usually laid down, that, when the eruption is vivid and comes out well, the patient runs less risk of suffering from the various morbid phenomena. On the contrary, he declares it to be a law in scarlatina as in variola that the gravity of the case is in direct proportion to the intensity of the eruption. In distinct variola life is in as little danger as in scarlatina with slight eruption ; and the issue of a confluent variola is surrounded by as many perils as is that of a confluent scarlatina, in which the entire skin is of a vivid red. The more intense the eruption, the more serious are the symptoms, and the more guarded should be the prognosis.

Art. 8.—*On Amyloid Degeneration of the Liver in Yellow Fever.* By Dr. Samuel Jackson.

(*American Journal of Medical Science*, Oct., 1857.)

The existence of an amyloid substance was demonstrated by Virchow and Bennett to be the peculiar anatomical alteration of the liver, in many cases designated as waxy or fatty; and Professor Jackson some time since suggested that the peculiar appearance of the liver in yellow fever, supposed to be fatty degeneration, might possibly be owing to a similar modification. Professor Jones, of Savannah, has since then examined several of these livers, and found that they contained a substance which gave reactions similar in all respects to cellulose, and presented under the microscope an appearance like the granules of starch. Dr. Jones also endeavoured to make gun-cotton from the yellow-fever liver, but without success. M. Pelouze, has, however, since shown that the glucogenic matter of the liver can, under the influence of fuming nitric acid, be trans-

formed into xyloidine like starch. M. Claude Bernard had already shown that sugar is not an immediate product of the liver derived from any element of the blood; but that it is constantly preceded by the creation of a special matter, capable of generating sugar by a sort of secondary fermentation. This glucogenic or sugar-forming matter, obtained separately, possesses all the characters of hydrated starch.

Assuming as correct the discovery of Bernard, the mechanism or process of the anatomical modification of the liver in yellow fever becomes apparent. The yellow-fever poison, introduced into the blood, vitiates its characters, properties, relations, and modes of action in the organism. All its functions are at first perverted, and ultimately, if the dose be powerful, are suspended or destroyed. The fermentative power of the blood being more or less impaired, and finally destroyed, the transformation of the amyloid substance into sugar is imperfect, or is not accomplished; the secretion of bile is at the same time arrested, and in consequence the amyloid element of the liver assumes an undue proportion in its structural composition. The peculiar character of the liver in yellow fever was first distinctly announced by M. Louis, as observed by him at Gibraltar. It has usually been supposed to be a form of fatty degeneration, though no regular and sustained chemical analysis, that I am aware of, ever demonstrated the fact.

Art. 9.—*Epidemic Fever characterised by mild Erythematic Pharyngitis.* By Dr. Rochester.

(*Buffalo Med. Journal*, May, 1857; and *North American Med.-Chir. Review*, March, 1858.)

During the months of January, February, and March, 1857, there prevailed in the city of Buffalo and its vicinity, a form of fever accompanied by mild pharyngitis, having a career of from three to five days, and generally, if not invariably, ending in convalescence. In a report made to the Buffalo Medical Association by Dr. Rochester, the results of an analysis of twenty-three recorded cases coming under his own observation were given, and the question of the identity of the disease with scarlatina discussed. From the results of the analysis, the following deductions were drawn by the reporter:—"The disease was an epidemic fever, characterised by mild erythematic inflammation of the fauces as a constant local complication. Its character as essentially a fever is established by the febrile movement being in so marked a degree out of proportion to the local affection; in other words, evidently not being symtomatic of the latter, and by its running a definite although a brief career. It is a fever of from three to seven days' duration. Its epidemic character is sufficiently apparent. It has prevailed more or less extensively in the city for about two months, reaching its acme gradually, declining gradually, and at length disappearing, affecting both sexes and different ages without notable discrimination. As an epidemic fever its symptomatic features were very uniform. The erythematous affection of the fauces constitutes the only positive character, aside from

the brief duration of the febrile career. The other symptoms uniformly present were only those incident to febrile movement; and the symptoms observed in a few cases—viz., the convulsions in one case, the retraction of the head in one case, &c., were only incidental events, not intrinsic elements of the disease. The small patches of white exudation observed in some of the cases do not suffice to establish any relation of the local affection to that called *diptheritic* by Brettoneau and others. The occurrence of several cases repeatedly in the same family does not suffice to prove that the disease was propagated by contagion, since this fact is explicable on the supposition of the patients being equally exposed to an epidemic influence, and there being a marked discrepancy in the intervals separating the cases necessarily occurring in the same family.

The disease was considered as a species of fever distinct from scarlatina, on the following grounds:—1. The uniform absence of the scarlatinous eruption on the exterior surface. 2. The uniform absence of any connection with well-marked cases of scarlatina, occurring either previously or subsequently. In no instance was the disease preceded or followed by scarlatina in the same family. 3. Several of the persons affected being adults and persons beyond middle life. 4. Medicine was in no instance followed by the sequels of scarlatina—viz., rheumatism, serous inflammation, and especially dropsy. 5. In several instances the persons affected had had scarlatina.

Dr. Rochester at the same time made a report on the same subject. Between January 6th and April 4th he had noted thirty-seven cases. In many instances he had been led to observe irregular intermittency in the febrile movement. The subjects in ten cases were of all ages and conditions. He regards the communicability of the disease as probable. If communicable, the period of incubation is short, the disease manifesting itself in some instances within twenty-four hours after exposure. In many cases the patients had had scarlatina. Two children who were very ill with scarlatina had this form of fever a month after their recovery.

Art. 10.—*Acute Rheumatism treated by large doses of Opium.* By Dr. Sibson, Physician to St. Mary's Hospital.

(*British Med. Journal*, Nov. 21, and Dec. 5, 1858.)

In this paper Mr. Hart, House-Surgeon at St. Mary's Hospital, relates 26 cases occurring in Dr. Sibson's wards during the last three years, which show the extraordinary tolerance of opium displayed by patients suffering from acute rheumatism. We see hardly anything of drowsiness, of tendency to coma, of constipation or contracted pupils; only, when the remedy is pushed to its extreme point, delirium comes on, which speedily subsides on the diminution of the dose. In some cases, it will be observed that, so far from constipation being produced by the opium, the patient actually suffered from diarrhœa during the opium treatment. In most of the cases, an improvement is reported in the patient's sleep; but this never proceeded to the

extent of narcotism. The pain, as might naturally have been expected, was in all cases much relieved; but any idea which has been entertained of the prophylactic virtue of large doses of opium against affection of the heart in rheumatism must, we think, be negatived by the table before us, by which it will be seen that, excluding the cases in which the heart was affected before the treatment was commenced, a proportion quite as large as the average suffered from cardiac affection while under the opium treatment. No evidence is contained in the above table as to any immunity from relapses which may be afforded by the treatment. It is curious, however, to observe that the only case which is known to have relapsed (No. 20), was one in which the treatment was abandoned in two days, on account of chest-affection. The patient was again under Dr. Sibson's care, and was treated on the narcotic plan; but the notes were not preserved.

With reference to the administration of other remedies, it seems that the opium does not materially interfere with their action; but on this point we are perhaps hardly competent to pronounce an opinion, not having had the opportunity of following the cases themselves. The time during which the patients remained in the Hospital does not seem to have been much shorter than under other plans of treatment; but their condition during this time appears to have been more tolerable, their convalescence less protracted, and the cardiac mischief, where present, was in most cases either nearly or entirely repaired before the discharge of the patient.

Case 1.—George W—, æt. 30, was admitted on September 12th, and discharged convalescent on November 20th. He had had two previous attacks of acute rheumatism, but without, as it seemed, any cardiac symptoms. The present attack had lasted two months, during which time he had been confined to bed, and treated apparently with purgatives and Dover's powder. The pain had been extreme, especially in the knees and feet. This, however, had somewhat mitigated at the time of his admission. He was treated principally by means of iodide of potassium, and continued to improve for a few days.

September 21st.—The acute pain returned in the knees and in the meta-carpo-phalangeal joints. He was sleepless; the urine deposited a copious sediment of lithates; the joints were affected, very red and tender. He was ordered to have a grain of opium, and two grains of ipecacuanha every two hours. He passed a restless night, but on the following afternoon had come under the influence of the opium, and had many hours of sound sleep. Next morning, when he awoke, the pain was undiminished, and the effusion greater; the tongue brown and dry; great thirst; much acidity of the urine, and perspiration. The pills were resumed; a mixture, with bicarbonate of potash, nitric ether and hyoscyamus was ordered, and mercurial ointment rubbed into the knees.

24th.—The pains were much relieved, and continued to be of a slight nature till October 3d; when, as they had recurred with sufficient violence to keep him from sleeping, he was ordered to take two grains of opium at bed-time, and a grain of opium and half a grain of extract of colocynth every two hours. This was persevered in till October 7th; when, as the pain was not relieved, three grains of opium, instead of two, were given at night. During this time he slept frequently, but only for short periods. The tongue was dry and brown, and he was weak and anxious.

October 10th.—The pain was somewhat relieved, and the effusion into the knee-joints much lessened.

14th.—He was ordered iodide of potassium, and potassio-tartrate of iron, of each six grains three times a day. The opium was continued, and increased next day, so that he took ten grains of opium on the 15th, and eight on the 16th. Notwithstanding this large dose the tongue was clean, and no symptom of narcotism, except drowsiness and dulness of manner, was present.

17th.—The pain and effusion were sufficiently relieved for him to be allowed to leave his bed; but the pain soon recurred, and the opium treatment was continued: it did not affect his appetite, nor did he sleep more than natural.

30th.—As the left knee and shoulders had become more painful, the pill was given every hour. He thus took on that day seven grains of opium in as many hours; nineteen on the 31st; fifteen on November 1st; thirteen on the 2d; and ten on the 3d. The opium was omitted next day, when he had lost his pain, and could move his shoulders without difficulty. From this time he continued to mend, and was discharged convalescent a fortnight afterwards.

Case 2.—George W—, æt. 17, baker, a healthy lad, was admitted on October 6th, and discharged cured on November 16th, with acute rheumatism of about a week's duration: the first attack, in the legs, arms, and shoulders. The pains were rather severe, and there was great tenderness, but not much swelling. He had a little difficulty of breathing, and the heart's sounds were diffused; otherwise there was nothing unnatural about the chest.

October 7th.— He was ordered to take a grain of opium, and half a grain of extract of colocynth every hour, and this was continued till, on the 8th, he had been brought well under the influence of the drug, when the pills were omitted for the present. In the afternoon, as the effect of the narcotic had passed off, he was restless, and complained of increased pain; the pills were again ordered every hour.

9th.—Symptoms of cardiac affection appeared, and a creaking sound could be produced over the præcordial region by pressure. Leeches were applied. The evidences of extensive pericarditis became more distinct during the next few days. The opium treatment was now pressed vigorously, so that in the eleven days, October 11th to 21st inclusive, he took the extraordinary quantity of 166 grains of solid opium. The treatment was continued one day longer, but the quantity on that day is not noted. It would be tedious to give the symptoms of the disease from day to day. Suffice it to say that the signs of inflammation of both the pericardium and endocardium were distinct; and there was at one time evidence of pleural effusion. The effect of the opium was shown from time to time in contraction of the pupil and drowsiness; the appetite was generally good; the tongue clean; perspiration free; and there was no complaint of constipation. The friction sound soon disappeared; but the endocardial bruit remained, though much weaker, and evidently receding, up to the time of his discharge. This took place one month after his admission, and somewhat less than six weeks after the commencement of the disease. He was then in perfect health (though rather feeble), except for the state of the heart above indicated.

Case 3.—William R—, æt. 39, a barman, was admitted on October 27th, and discharged cured on December 15th. He had been labouring under acute rheumatism for about a fortnight. The pain was severe in the knees, shoulders, and knuckles. There were no heart symptoms. His general health seemed to be pretty good. He was put at once on the opium treatment;

pill containing one grain of opium with a small quantity of colocynth being given every hour. He took six pills that day, in the course of seven hours, with manifest relief to the pain, but without their procuring sleep. During the next three days the pills were continued regularly (he took fifty-two in this time); when, as he was becoming delirious, they were ordered every third hour, and then discontinued. He had thus taken sixty-two grains of opium altogether in five days. The principal effect appeared to be the relief of the pain, so that he could soon sit up easily in bed, whereas, on his admission, he could not bear to be raised. He did not sleep inordinately, and was always easily roused. The delirium noted above soon subsided on the omission of the narcotic. He was ordered to have an effervescing saline draught with ammonia.

On November 4th, however, cardiac symptoms supervened; a friction-sound and systolic murmur were heard. Leeches were applied; and the opium was again ordered as before, and again pushed till he began to show symptoms of delirium. This was on the 11th. In the interval, the symptoms of pleurisy had been added to those proceeding from the affection of the heart. He was now ordered to take the pills every three hours; and, in a few days, this was diminished to every four hours. This treatment (he had been taking the saline mixture at the same time) was continued till December 1st; when, as his pains had subsided, and he was well enough to walk, it was abandoned. The murmur had almost disappeared; the chest seemed free from fluid; and he was advancing rapidly to convalescence.

He left the house, in every respect well, on December 15th, thinking himself in no respect weaker or less healthy than before the attack.

Case 4.—George F—, æt. 26, a huckster, was admitted on November 14th, and discharged on January 5th, with acute rheumatism (the second attack) of six days' standing. The pains were seated principally in the wrists and ankles. There was no heart affection. The progress of this was very like that of the other cases. He was ordered four ounces of lemon-juice a day, and the same pill as in the previous cases every hour. This was continued for twelve days, and during nine of them the doses were accurately noted; they amounted to a hundred and forty-one grains of opium. Murmur, both exo- and endocardiac, occurred on the fourth day of the opium treatment. The latter never produced any narcotism or delirium. There was effusion, also, in the pleura here, as in the last case; and he suffered from slight bronchitis. The pains were soon subdued; and the cuticular symptoms altogether subordinate to those affecting the chest, to which the treatment was afterwards directed.

Case 5.—John W—, was admitted on account of a slight accident, and transferred on account of rheumatic pain and stiffness of the wrists and ankles, and some pain in the chest, on November 10th. These symptoms had existed three days. A systolic murmur was heard. In this case the same treatment was at first employed, and he took a hundred and twenty-seven grains of opium in nine days; when, as he had been brought fully under the influence of the drug, and was slightly delirious, its further use was suspended. It did not seem to have produced any marked benefit.

Art. 11.—*On the early stages of Inflammation.* By Mr. Joseph Lister.

(*Edinburgh Medical Journal*, Jan., 1858.)

In this communication the author gives an account of an investiga-

tion, with which he has been recently occupied, into the process of inflammation in the frog's foot. The paper is divided into four sections, with an introduction and conclusion.

In the introduction it is observed, that "so far from our knowledge of inflammation being in a satisfactory condition, authorities are at variance upon the fundamental question, whether it is to be regarded, in accordance with John Hunter's opinion, as active in its nature, and consisting in an exaltation of the functions of the affected part, or whether it should not rather be considered a passive result of diminished functional activity. . . . In seeking for the solution of this great problem, we cannot expect to gain much from the contemplation of the more advanced stages of inflammation. . . . It is upon the first deviations from health that the essential character of the morbid state will be most unequivocally stamped; and it is therefore to the early stages of inflammation that our attention must be chiefly directed."

Some cases are then mentioned to show that "in the early stages of inflammation in the human subject, whether induced by mechanical irritation or by an acrid application such as mustard, or of spontaneous origin, the minute vessels become abnormally loaded with red blood, the corpuscles of which ultimately become to a greater or less extent arrested prior to the occurrence of effusion." It is afterwards shown, from numerous facts, that "conclusions arrived at from the study of the early stages of inflammation in the foot of the frog will apply in all strictness to the same morbid process in man."

The remainder of the introduction is occupied with a sketch of the principal theories which have been proposed to account for the obstruction to the progress of the blood-corpuscles in the early stages of inflammation.

The first Section of the paper is devoted to the discussion of the aggregation of the corpuscles of the blood. It is shown by the author that the *rouleaux* "are simply the result of the disk-form of the corpuscles, together with a certain, though slight degree of adhesiveness, which retains them pretty firmly attached together when in the position most favorable for its operation, namely, when flat surface is applied to flat surface, but otherwise allows them to slip very readily upon one another." The aggregating tendency of the red disks is thus regarded as a phenomenon similar in kind, though inferior in degree, to the well-known adhesiveness of the white corpuscles. It is further shown, from numerous experiments, that the red corpuscles vary remarkably in adhesiveness, in consequence of changes in physical circumstances, or very slight chemical action.

Section II is on the structure and functions of the blood-vessels.

Allusion is made to a paper by the author, which will shortly appear in the 'Transactions of the Royal Society of Edinburgh,' where he has recorded the observation, that in the smallest arteries of the web of the frog's foot the middle coat is composed of muscular fibre-cells wrapped spirally round the internal membrane. The parietes of the minute arteries are thus provided with a most efficient mechanism for diminution of calibre, and contrast in this respect very strikingly with the delicate nucleated membrane which constitutes the wall of a

capillary. The functions of the two sets of vessels are described as being in harmony with these differences in structure; the arteries being specially characterised by contractility, while the capillaries exhibit only such changes of calibre as are explained by elasticity.

The thinness of the capillary wall is believed to favour the mutual interchanges between the blood and the tissues, but the consideration of some facts of physiology leads the author to the conclusion, that notwithstanding the distending force of the current of blood, the liquor sanguinis is not effused as a whole among the tissues in the state of health; and this is thought to imply that there subsists a mutual repulsion between the materials of the capillary wall and the elements of the liquor sanguinis, preventing the passage of the latter into the pores of the former, except in so far as they are attracted by the tissues for the purposes of nutrition.

The heart is believed by the author to be the sole cause of the circulation of the blood in the frog's foot, and it is proved experimentally that other sources of movement cannot have more than a very trivial influence, and that their cessation, supposing them to exist at all, does not give rise to arrest of the blood or accumulation of corpuscles in the capillaries.

Distinct evidences of muscularity and contractility have been detected in the veins of the frog's foot, but, compared with the arteries, the veins show very little spontaneous contraction.

Regarding the influence of changes in arterial calibre upon the blood in the capillaries, the author is led to conclude that "the arteries regulate by their contractility the amount of blood transmitted in a given time through the capillaries, but neither full dilation, extreme constriction, nor any intermediate state of the former is capable *per se* of inducing accumulation of corpuscles in the latter."

The influence of the nervous system upon the arteries has formed the subject of a special experimental inquiry, the results of which are given in a supplement to this paper. It is there shown that the contractions of the arteries of the frog's web are regulated by a part of the spinal cord, the irritation of which induces complete constriction of the vessels, while its destruction is followed by permanent dilatation. Neither stimulation nor removal of the nervous centre for the arteries produces any perceptible change in the quality of the blood, as respects adhesiveness of its corpuscles or otherwise.

Section III, "On the effects of irritants upon the circulation in the frog's web," commences with an account of some experiments performed with tepid water applied for a brief period to the foot. This agent, which was selected as the mildest possible stimulant, produces in a very beautiful manner constriction of the arteries, followed by dilatation, with corresponding changes in the amount of blood transmitted through the capillaries, as explained at the close of Section II. When, however, such experiments were frequently repeated upon the same animal, and especially if the temperature of the water was more elevated, effects of a different kind began to show themselves; the corpuscles of the blood experiencing obstruction to their progress even while the arteries were fully dilated, and the vessels consequently in the state most favorable, so far as their

calibre was concerned, for transmitting the current of blood. If the irritation was still continued, the minute vessels became choked with closely packed corpuscles.

Subsequent experiments, with a variety of other irritating agents, showed that the corpuscles, both red and white, were obstructed in their progress through the irritated part, in consequence of their tending to adhere in an abnormal degree to one another and to the walls of the vessels. The effects upon the blood were always similar, although the means employed to produce irritation were exceedingly various, such as solutions of salts, mustard, essential oils, chloroform, heat, galvanic shock, mechanical violence, &c.

The irritant was generally so applied as to act only upon a small area of one of the webs, and it was found that the abnormal adhesiveness of the blood-corpuscles was in the first instance always precisely limited to the spot which had been thus acted on, though it frequently extended afterwards more or less to surrounding parts. At the same time the vessels of the irritated spot did not differ materially in calibre from those in its vicinity, which participated in the arterial dilatation induced by the stimulus. The exact correspondence between the extent of the irritant application, and that of the effect upon the blood, showed that the latter must be due to direct action either upon the blood itself or the tissues of the web. That it was not the result of direct action upon the blood was evident from the two following considerations. In the first place, most of the agents employed to cause irritation, when applied to freshly drawn blood, either had no effect upon the corpuscles, or destroyed instead of increasing their adhesiveness. Secondly, if employed so as to act mildly on the web, they induced an abnormal condition of the blood, short of actual stagnation, though very apparent, namely, slow movement of numerous and adhesive corpuscles; and this state of things might last, although the time of operation of the irritant was often limited to a few seconds, or even a still briefer period. Long after all the blood which could possibly have been directly acted on had left the vessels of the part, successive fresh portions continued to experience precisely similar changes in passing through the irritated area. Hence the author considers the conclusion to be inevitable, "that the tissues, as distinguished from changes of calibre in the blood-vessels, are the primary seat of inflammation, and that the effects on the blood are secondary results of such derangement."

The remarkable fact discovered by Dr. H. Weber of Giessen, but observed independently by the author, that accumulation of corpuscles occurs in the vessels of a part irritated, after circulation has been arrested by a tight ligature round the thigh, furnished the opportunity for careful comparison between the conditions of blood in healthy and irritated parts uncomplicated by the effects of rapid movement. A series of experiments, conducted in this way, confirmed the conclusion previously arrived at, that the accumulation of the blood-corpuscles was simply the result of their abnormal adhesiveness. At the same time these experiments brought out the remarkable fact, that mere quiescence of the blood does not give rise to aggregation of the red corpuscles within the vessels, unless the

tissues are in an unhealthy condition in consequence of irritation. It further appeared that the corpuscles never exhibit greater adhesiveness within the vessels of an inflamed part, than do those of blood from a healthy part when drawn from the body. Also, the well-known adhesiveness of the white corpuscles within the vessels does not occur, according to the author, unless some degree of irritation is present, and never exceeds that which is always seen in blood outside the body. Hence the inference is drawn, that the tissues of a healthy part exert an influence on the blood in their vicinity, by means of which the corpuscles, both red and white, are preserved free from adhesiveness; but that in an inflamed part this influence is more or less in abeyance.

This view has been confirmed by observations made on the wing of the bat.

Also the comparison of drops of blood from healthy and inflamed parts in the human subject showed, that so soon as the blood was withdrawn from the vessels, the corpuscles of the former presented precisely the same degree of adhesiveness as those of the latter.

At the commencement of Section IV, "On the state of the tissues in inflammation," it is stated that "the conclusion arrived at in the latter part of the last section, that blood flowing through an inflamed part behaves itself in the same way as when separated from the living body, naturally leads us to infer that the tissues of the inflamed part are in some degree approximated to the condition of dead matter, or, in other words, have suffered a diminution of power to discharge the offices peculiar to them as components of the healthy animal frame. This inference is strongly supported by considering what common effect is likely to be produced upon the tissues of the frog's web by all the various agents known to cause inflammatory disturbance of the circulation." It is then pointed out that all these agents, though differing greatly in their nature, agree in their tendency to inflict a lesion on the part to which they are applied, and impair the functional activity of the tissues. "But strong as are the arguments thus obtained by inference, it would be very desirable to confirm them by direct observation of the tissues. It fortunately happens that the pigmentary system of the frog is a tissue which, from its peculiar form and colour, is very apparent to the eye, so that it is easy to trace the remarkable active functions with which it is endowed, and their modifications under the influence of irritation."

The author then mentions the circumstances which led him to notice that the dark pigment of the frog presents remarkable differences of appearance at different times in one and the same animal; each dark patch being sometimes of stellate figure with minutely ramifying rays, at other times in the form of a small rounded spot. These changes had been before observed by some German writers, who attributed the rounded form to contraction of the branching rays of a stellate cell. This, however, the author finds to be erroneous, and in a supplementary section "on the anatomy and physiology of the pigmentary system of the frog," shows that the cells never change in form or size, but that the pigment-granules which are suspended in a colourless fluid are capable of being, on the one hand, attracted

by a central force into a small space in the body of the cell, and, on the other hand, dispersed by a repulsive power into the minutest recesses of the ramifying rays. Both concentration and diffusion of the pigment may take place with great rapidity, implying remarkable energy in the attractive and repulsive forces, both of which appear to reside in a nucleus. The supplementary section concludes with some remarks on the physiological importance of the actual observation of such attractions and repulsions in one of the animal tissues.

The paper continues with an account of an experimental investigation into the effects of irritants upon this function of the pigmentary system. Many experiments are related, all tending to support the general proposition, that "all agents, without any exception, which have the power of inducing accumulation of corpuscles and stagnation in the blood-vessels when applied to the web, paralyse at the same time the functions of the pigment-cells." It is also shown, from experiments upon amputated limbs free from blood, that this effect is independent of the state of the circulation. In cases of slight irritation, in which the blood resumes, after a while, its natural characters (resolution taking place), the paralysis of the pigment-cells is only temporary. "Thus the pigmentary system of the frog is a remarkably sensitive index of the condition of the affected tissue, and it is fortunate that its physical characters render it so easy to read its pointings. . . . The only other tissue of the frog's web, the functions of which can be observed by the eye, is that of the arterial muscular fibre-cells," and it is found that arteries passing through an inflamed area lose their power of contraction within the limits of that area, whereas the same vessels may be often seen to contract in other parts of their course.

"Thus, direct observation of the structures of the frog's web which discharge functions apparent to the eye, furnishes unequivocal support to the inference derived from other considerations, that in inflammation the tissues of the part, the primary seat of the affection, are in a state of diminished functional activity."

The "conclusion" consists of an inquiry how far the views expressed in the paper regarding the early stages of inflammation harmonise with the more advanced phenomena of the morbid process and with other facts of pathology.

Art. 12.—*On the treatment of Acute Inflammatory Disease.* By Dr. Fincham, Physician to the Westminster Hospital.

(*Lancet*, March 13, 1858.)

The object of this paper is to show that in an immense majority of cases of acute inflammation of the lungs, pleuræ, and heart—chiefly of the first two, in the form of pleuro-pneumonia—the antiphlogistic treatment is not necessary, and that patients will recover under very simple treatment—as by diaphoretics and counter-irritants; sometimes under stimulation pushed to the fullest extent; sometimes under what is, practically, no treatment at all. After alluding to the success which has now, in the experience of so many, followed

the omission of the antiphlogistic plan as a rule in inflammatory disease, the author calls attention to the principle which he believes to underlie the management of all such cases, especially of pneumonia. This principle is, to regard local inflammations as the result of a previous unnatural condition of the blood, and so to place them in the category of fevers. "For what, after all," he says, "is the characteristic of a large majority of what are called fevers, whether eruptive or otherwise? Is it not constitutional disturbance, followed by local inflammation? What is scarlatina, but such disturbance, followed by inflamed throat? What erysipelas, but the same, followed by inflammation of the head and face? What dysentery, what typhoid fever, but the same, issuing in inflammation of the mucous membrane? Now, in all these there are the full signs of inflammation, effusion, &c., and yet no one thinks of bleeding, mercurialisation, or the use of antimony. What is usually and wisely done in such cases is to watch them well, and to moderate, if possible, local action, trusting in the main to the powers of nature, if no urgent symptoms are present. Such is the practice in favorable cases; but should the powers of nature be failing, then the fullest use of stimulants—no matter what the period of the disease, no matter what amount of local inflammation be present, it is necessary to sustain the flagging system. Now, if under this principle of treatment, inflammations will subside in fevers, why should we not expect the same to take place in analogous diseases? The cardiac inflammation of rheumatism and of Bright's disease is doubtless an effect of an unnatural condition of the blood; and the difference between these inflammations and those in connexion with fevers is, that in the latter the morbid agent is introduced from without; in the former, generated from within. Why, then, should we expect to cut short, by large bloodlettings, an inflammation so arising as rheumatic pericarditis, when we do not expect to do so in erysipelas. The *origo mali* in both cases remains the same, notwithstanding the abstraction of blood." The author then proceeds to extend this view to pneumonia, characterised as it is by the most palpable constitutional disturbance—*e. g.*, the marked initiatory rigor, followed by the symptoms of local inflammation. He considers that the most reasonable theory of the disease is, to regard the inflammation of the lung, not as the *direct* effect of cold on the lungs, but as due to retained and altered secretions, especially of the skin, thrown back upon the blood through atmospheric impressions; and that it is as reasonable to expect to cut short the herpetic eruption, so common in pneumonia, as the pneumonia itself. On the ground, then, of an identity, or at least of analogy, in the pathology of acute inflammations and fevers proper, it is urged that a treatment similar in principle should be adopted in both class of cases. The cases are mainly drawn from the author's case book at the Westminster Hospital.

Art. 13.—*On the nature and treatment of Inflammation.* By Dr. Cameron, Physician to the Southern Hospital, Liverpool.

(*Liverpool Medico-Chirurgical Journal*, Jan., 1858.)

Dr. Cameron argues that inflammation in all its stages is especially associated with a depressed state of the vital powers, and at the same time he furnishes certain statistics to show that the results of treatment in his own hospital practice have been more satisfactory since he abandoned the routine antiphlogistic plan of treatment. The patients consisted principally of sailors in the prime of life, and "usually in the enjoyment of excellent health;" and all the notes were taken carefully by Dr. Cameron himself. The statistics are as follows:

1. Pleuritis.—Antiphlogistic treatment in 29 cases. Recovered, 24; died, 5.

Of the 24 who recovered—

Duration of illness. In 12, illness lasted fourteen days, or more; in 10, seven days, or more; in 2, duration uncertain.

Progress of case. In 9, favorable; in 15, unfavorable.

Bleeding gave relief in all the cases, though in several it was only temporary.

Mercury. Administered in 16 cases. In 12, no action on the mouth; in 5, abdominal irritation, increase of febrile and pulmonary symptoms; in 4, progress favorable; in 3, results uncertain; in 4, mouth affected (on the fourth, fifth, sixth, and ninth days); in 2, immediate improvement occurred; in 2, results doubtful.

Antimony. Administered alone, or with opium, in 6 cases. In 4 cases it seemed to act beneficially, without producing any gastric or intestinal disturbance; in 2, abdominal irritation was present, with consequent depression of the system, and aggravation of the pulmonary symptoms.

Of the 5 fatal cases—

Bleeding was practised in all, and with temporary relief.

Mercury. Administered in the 5 cases, in none of which did it seem to arrest the disease; in 1 it brought on severe dysenteric symptoms, which appeared to hasten the fatal result.

Treated without Bleeding or Mercury. 13 cases (all recovered).

Duration of cases. In 2, fourteen days, or more; in 11, seven days, or more.

Progress. In 4, unfavorable; in 9, favorable.

2. Pneumonia.—Antiphlogistic treatment, 20 cases. Recovered, 15; died, 5.

Of the 15 who recovered—

Duration of illness. In 9 cases illness lasted fourteen days, or more; in 6 cases, seven days, or more.

Progress of case. In 8 cases favorable; in 7 cases unfavorable.

Bleeding. In most cases *immediate relief* followed the use of this remedy; but frequently this relief was only temporary. In 5 cases, extension of the disease, either in the substance of the lung, or to the pleura, occurred after bleeding.

Mercury was administered in 5 cases. In 2, *improvement of the di seas* occurred, without any apparent action of the medicine; in 1, *no benefit* ssemed to be derived from its use; in 1, *aggravation* occurred during its administration.

Antimony was given alone in 10 cases. *Gastric*, or *intestinal irritation*, accompanied by depression, appeared during its administration in 4 cases. In 2 of these, an *aggravation of the disease ensued.*

The 5 deaths occurred respectively on the second, fifth, fifth, and eighteenth days. In the 5th case, the period of illness was uncertain. The 5 cases were treated by bleeding and antimony. In 1 case, mercury was given in addition.

Bleeding. In 3 cases, immediate though temporary relief; in 2 cases, no relief.

Mercury. Administered in 1 case. Mouth affected on the eleventh day; notwithstanding, increase of the febrile symptoms occurred, extension of the disease, and death by acute gangrene.

Antimony. Intestinal irritation in 1 case.

Treated with antimony, diaphoretics, quinine, or stimulants. Opium administered in nearly all:—34 cases. Recovered, 24; died, 10.

Of the 24 who recovered—

Duration of case. In 17 cases, illness lasted seven days, or more; in 7 cases, fourteen days, or more.

Progress of case. In 16 cases, favorable; in 8 cases, unfavorable. In the 8 cases in which the progress was unfavorable, the change coincided with the supervention of depression; attributed in one case to severe diarrhœa, in another to sickness and nausea. Antimony had been administered in all.

10 Deaths—

Death occurred in 3 cases in less than twelve hours after admission; in 2 cases, on the second day after admission; in 3 cases, on the third day after admission; in 1 case, on the fourth day after admission; in 1 case, on the thirteenth day after admission. Antimony was administered in 2 cases. The stimulating treatment was adopted in the other cases, in which the disease was far advanced either into the second or third stage, at the time of admission.

3. Endocarditis and Pericarditis.—Antiphlogistic treatment (Bleeding and Mercury). 17 cases: 7, Endocarditis; 10, Pericarditis. Recovered, 16; died, 1.

Of the 16 who recovered—

Duration of illness. In 11 cases, the illness lasted fourteen days, or more; in 2 cases, seven days, or more; in 3 cases, duration of illness uncertain.

Progress of case. In 6 cases, favorable; in 10 cases, unfavorable.

Bleeding. In all the cases, relief was obtained by bleeding; but in 10 it was only temporary. In 1 case of endocarditis the pericardium became engaged the day after the bleeding; and in another,—a case of uncomplicated rheumatism,—the heart-affection appeared *after* the patient had been bled.

Mercury was administered in all the 16 cases.

No action on the mouth in 7 cases. In 3 of these, dysenteric symptoms occurred, aggravation of the heart-disease supervening at the same time.

Mouth became affected in 8 cases; in 2 on the fourth day after treatment, and in 2 on the eighth day. In the others, respectively on the fifth, sixth, eleventh, and twelfth days.

Increase of the febrile disturbance coincided with the appearance of the affection of the mouth in 3 cases, in *two* of which extension of the disease occurred.

In 5, the progress of the disease was favorable.

In the 16th case, the results of the administration of the remedy were uncertain.

Disappearance of friction sound. In 1 case on the seventh day; in the others, at periods varying from the twelfth to the twenty-third.

Disappearance of the endocardial murmur. In 1 case the murmur disappeared on the seventh day; in the others, a murmur was still audible when the patients left the hospital.

One case died—

Bleeding. Temporary relief was experienced after bleeding.

Mercury gave rise to dysenteric symptoms, but did not affect the mouth.

The case was characterised by repeated relief, followed by aggravation of the symptoms.

Two Cases treated without Bleeding or Mercury.

In 1 case the friction-sound disappeared on the fourth day of the treatment. This patient was discharged on the *twelfth day* of the treatment, at his own request. The endocardial murmur was still frequently audible, but in other respects the patient felt so well that he could not be persuaded to remain in the hospital.

In the 2d case, the friction-sound disappeared on the eleventh day of the treatment. This was a remarkably severe case of acute rheumatism, during the course of which the heart-affection became developed. Patient recovered completely, with total disappearance of the endocardial murmur.

4. Cynanche.—(Treated without Bleeding.) Cases—14. Recovery, without suppuration, 13 cases; recovery, with suppuration, 1 case.

All the cases of *Acute Bronchitis* and *Acute Albuminuria* admitted within the last few years, were treated without bleeding, &c.

Art. 14.—*Propagation of the "Distemper" from animals to man, &c.* By Professor Krause.

(*Deutsche Klinik*, and *Dublin Hospital Gazette*, Nov. 15, 1858.)

Professor Albert Krause has lately established the communicability of this fatal distemper from the lower animals to man, and by a series of experiments has also proved that the disease may be propagated from man to the sheep by inoculation. A man, after having skinned a sheep which had distemper, sickened and died. The symptoms which he presented during life, and the appearances observed on dissection of the body, threw ample light on the nature of the disease. With the blood of this man a sheep was inoculated, which died after thirty hours, and with its blood another animal was inoculated, and so on, until seven others were destroyed; the eighth animal experimented on did not die of this operation. Death took place in each case after a period which varied from thirty to forty hours from the reception of the blood by inoculation. In the bodies the spleen was found disor-

ganized, and the blood had assumed the appearance of tea. Under the microscope the blood-corpuscles were found to be club-shaped, and this was observed during life; even in the animal which had been last inoculated the blood presented this appearance during its illness, but it no longer existed on its recovery. In addition, vibriones were discovered in the blood of the dead animals. These observations leave no doubt that in this distemper and in other analogous disease, the alteration of the blood plays the most important part. Professor Krause, after he had made these sections felt a sensation of heaviness in his left hand and foot, and as they were asleep; he also experienced in these parts a sensation of formication. After some days these symptoms disappeared under frictions of Liq. Ammon. Vinos. Six days later, symptoms referable to the brain, such as noises in the ears and spectral illusions, set in, but they also soon disappeared. In the performance of the sections he had not injured himself, but he had examined the cavities of the animals with his left hand, upon which there was a recent cicatrix; he had, however, taken the precaution of oiling his hand previous to making the post-mortem examinations.

Art. 15.—*On the Murrain.* By Professor Simonds.

(*Medical Times and Gazette*, Jan. 2, 1858.)

The following conclusions are appended to Dr. Simonds' able and valuable report on the cattle plague:

"1. That all the countries of Northern and Western Europe from which cattle are exported to England are perfectly free from the rinderpest; and that the only disease of an epizootic or destructive nature which prevails therein is the one known to us as pleuro-pneumonia—which disease has existed here since 1841.

"2. That in the greater part of the official despatches and reports which have been forwarded to the Government, and by them transmitted to the Royal Agricultural Society of England, the rinderpest has been confounded with pleuro-pneumonia, 'milzbrand,' and other destructive maladies to which cattle are liable.

"3. That the rinderpest is a disease which specially belongs to the Steppes of Russia, from which it frequently extends in the ordinary course of the cattle trade into Hungary, Austria, Galicia, Poland, &c.

"4. That whenever circumstances have arisen which called for the movements of troops, and consequently the transit of large numbers of cattle in Southern and Eastern Europe, and particularly when Russian troops have crossed the frontier of their territory, the disease has been spread over a far greater extent of country.

"5. That the disease which has recently prevailed in Galicia—where it was specially investigated by ourselves—as well as in Poland, Austria, Hungary, the Danubian Provinces, Bessarabia, Turkey, &c., is the true rinderpest or Steppe Murrain of Russia.

"6. That with the exception of a few places in the kingdom of Prussia and others in Moravia, near to the frontier of Galicia and Poland, the disease in its outbreaks of 1855, 1856, and 1857, did not

extend to any country lying westward of a line drawn from Memel on the Baltic to Trieste on the gulf of Venice.

"7. That speaking in general terms, rinderpest has not existed in Central and Western Europe for a period of forty-two years; its great prevalence at that time being due to the war which was being then carried on between the different continental kingdoms and states.

"8. That all the facts connected with the history of its several outbreaks concur in proving that the malady does not spread from country to country as an ordinary epizootic. And that if it were a disease exclusively belonging to this class, the sanitary measures which are had recourse to throughout Europe would be inefficient in preventing its extension, and consequently that in all probability we should long since have been both painfully and practically familiar with it in this country, as hundreds of our cattle would have succumbed to its destructive effects.

"9. That it is one of the most infectious maladies of which we have any experience, and that it is capable of being conveyed from animal to animal by persons, and various articles of clothing, &c., which have come in contact with the diseased.

"10. That the ox tribe is alone susceptible to the disease; and that the morbific matter on which it depends lies dormant in the system for a period of not less than seven days, and occasionally, according to some continental authorities, as long as twenty days before the symptoms declare themselves.

"11. That an attack of the disease which has terminated favorably renders the animal insusceptible to a second action of the *materies morbi* which gives origin to the pest.

"12. That the deaths often amount to 90 per cent.

"13. That the malady is one in which the blood is early, if not primarily affected; and that subsequently the mucous membranes throughout the entire body become the principal seat of the morbid changes.

"14. That the symptoms are in general well marked and quite characteristic of the affection.

"15. That all varieties of medical treatment which have as yet been tried have failed in curing the disease; the recoveries which take place having for the most part depended on the *vis medicatrix naturæ*.

"16. That no fear need be entertained that this destructive pest will reach our shores. Its present great distance from us would, of itself, afford a fair amount of security; but when we add to this that no cattle find their way from thence directly or indirectly to the English market, and also that in the event of the disease spreading from Galicia, it would have to break through hundreds of military *cordons*, one after the other, before it could possibly reach the *western side* of German states; and, moreover, that for years past commerce has been unrestricted with regard to skins, hides, bones, &c., of cattle from Russia and elsewhere, all alarm, we believe, may cease with reference to its importation into the British Isles."

(C) CHRONIC DISEASES.

ART. 16.—*On the antagonism of Ague and Consumption.* By Dr. COCKLE.

(*Sanitary Review*, Jan., 1858.)

The following passage is from an address on General Pathology, recently delivered at the Grosvenor Place School of Medicine.

"Dr. Green, of Whitehall, in the province of Washington, U.S., where intermittents are of unusual frequency, declares that there did not exist one single instance of phthisis developed in the district; and that the consumptive invalids arriving there experienced a relief as decided as it was permanent. The same author also states that a morass near Rutland, having been converted into a pond, the intermittent fevers disappeared from that part of the country, and were replaced by pulmonary consumption. The population having solicited and obtained the suppression of the pool, or, what amounted to the same thing, the re-establishment of the morass, the original agues returned, and antagonised the development of phthisis."

ART. 17.—*The effects of Ague and Quinine upon the Urine.* By (1) Dr. W. A. HAMMOND; (2) Dr. H. M. STEWART; and (3) Dr. RANKE.

1. (*American Quarterly Journal of Med. Science*, April, 1858.)
2. (*Charlestown Med. Jour. and Rev.*, May, 1857.)
3. (*Medical Times and Gazette*, May 30, 1857.)

1. Dr. Hammond's investigations were made upon himself during a recent attack of intermittent fever of the tertian type, his attention having been called to the subject by the papers of Dr. Ranke and Dr. Stewart, which are also referred to in this article. The results of five carefully conducted experiments are collected together in the accompanying table.

	1st day. Paroxysm.	2d day. Intermission.	3d day. Paroxysm.	4th day. Administration of Quinine.	5th day.
Quantity of urine	1221·7 c. cm.	1650·4 c. cm.	1387·2 c. cm.	1750 3 c. cm.	1806·3 c. cm.
Specific gravity .	1020·06	1022·17	1019·45	1024·67	1024·81
Urea . .	325·18 grs.	480·37 grs.	300·16 grs.	489·43 grs.	638·20 grs.
Uric acid . .	28·31 ,,	16 84 ,,	31·54 ,,	13·79 ,,	12·71 ,,
Free acid . .	39·40 ,,	34 73 ,,	35·72 ,,	27·54 ,,	25·80 ,,
Chlorine . .	95·42 ,,	114·58 ,,	108·11 ,,	129·83 ,,	138·27 ,,
Phosphoric acid .	69·18 ,,	52·95 ,,	72·95 ,,	55·27 ,,	56·22 ,,
Sulphuric acid .	32 11 ,,	38·14 ,,	41·76 ,,	48·18 ,,	40·10 ,,

"From these data it is perceived that, during an attack of intermittent fever, the uric acid and phosphoric acid are very much increased in amount, and the urea and chlorine greatly diminished. During the intermission, there is a close approach to the normal proportions of these constituents, but a subsequent paroxysm restores the former condition. The disulphate of quinia, however, produces a permanent impression on the character of the urine, and, with the return to the natural relations existing between the several substances entering into the composition of this excretion, the disease disappears."

2. As the uniform result of five experiments which Dr. Ranke has made upon three healthy individuals, it appears that the disulphate of quinine has the effect of diminishing the quantity of uric acid in the urine.

"The usual method was employed for the determination of the uric acid; that is to say, 100 cubic centimeters of the urine were mixed in a test-glass with 6 cubic centimeters of concentrated hydrochloric acid, and left to stand for 48 hours. Then the uric acid, which had been precipitated, was carefully collected upon a filter. The weight of the filter in a perfectly dry state had been determined in the watch-glass apparatus. The uric acid was washed until the water that ran off the filter had ceased to have an acid reaction. The filter was then again dried in the air-bath and weighed, and the difference between the first and second weighing was calculated as uric acid.

"The following are the numbers I thus obtained, and from these the reader may draw his own conclusions. I excrete, on an average, when in a healthy state, and living on a mixed diet, 0·629 grammes of uric acid during 24 hours. This average is taken from 20 observations. Maximum, 0·832; minimum, 0·455; and the figures of this series are distributed thus: 0·8 and 0·7 occur twice each; 0·6 eight times; 0·5 seven times; and 0·4 once.

"Now, in the first experiment I took 20 grains of disulphate of quina in the course of the day; and during the next 48 hours the excretion of uric acid amounted in all to 0·542 grammes, which gives for 24 hours 0·271 grammes, or less than half my normal quantity.

"The second experiment gave a similar result, the quantity of uric acid excreted during 48 hours, after 15 grains of quina had been taken, being equal to 0·790 or 0·395 for 24 hours. On the third day, after quina had been taken, I excreted again about my normal average, namely 0·621 grammes, and on the two following days 0·543 and 0·656 grammes respectively. I now took quina for a third time, and the quantity of uric acid again fell to 0·438 grammes on the first, and to 0·192 grammes on the second day.

"The fourth and the fifth experiments were made on two of my medical friends, who kindly volunteered to take quina. Here are the results.

"Dr. S. excreted during the two days previously to his taking quina 0·544 and 0·543 grammes of uric acid. On the third day he took 20 grains of disulphate of quina in two 10 grain doses, and on that day he excreted 0·376 grammes of uric acid. The next morning he again took 5 grains of quina, and the quantity of uric acid subsequently fell

to 0·317 grammes. During the three following days he excreted 0·483, 0·450 and 0·654 grammes respectively.

"Dr. M. excreted during four days prior to his taking quina 0·662, 0·774, 0·585, and again 0·585 grammes of uric acid. Then he took 10 grains of quina, and on that day excreted 0·358, and on the next 0·387 grammes of uric acid. On the third day after he had taken quina the uric acid rose again to 0·670 grammes, and remained there stationary, amounting to 0·671, and 0·668 grammes on the two following days.

"To the foregoing statement I have to add that in two of the experiments I have also determined the other constituents of the urine. The solids in general, and the urea, I found not materially affected under the influence of quina, but the phosphoric acid appeared to be augmented. However, these points require a good deal of further investigation, and I therefore abstain here from giving details.

"I hope to read very soon that others have repeated the experiment, and that we shall thus get more materials towards arriving at the truth.

"To those who might be inclined to repeat the experiment I have to add one or two remarks. There are occasionally persons met with who, though apparently in good health, excrete uric acid with great irregularity, the maximum and minimum being widely separate from each other; such persons should not be used for the experiment, as it would be necessary in these cases to take the average of a great many observations in order to obtain reliable results. Moreover, it is advisable to take during the time of observation not too much fluid, as great dilution of the urine tends to make the determination of the uric acid less accurate."

This fact, Dr. Ranke considers, may tend to throw some light upon the nature of ague, and the *modus operandi* of quinine in its cure, as "in ague there is, according to all observers, a considerable *increase* of uric acid in the urine."

3. The observations of Dr. Stewart form the subject of a thesis, which received the college premium of the Medical College of South Carolina. Before the treatment was commenced, the urine of seven patients, suffering from ague, was found to contain uric acid, urate of soda, biliary matter and mucus. After the administration of quinine triple phosphates were found *in addition*, and the specific gravity was increased. Dr. Stewart does not notice the diminution of uric acid noticed by Dr. Ranke. The author also examined the urine of three healthy persons before and after the administration of quinine, and found in each case that the medicine *increased* the specific gravity. How increased the specific gravity he does not say. The inference drawn in the paper is, that quinine is a "blood depurator," and that in ague the blood is hyper-phosphatic.

ART. 18.—*On the advantage of large doses of Quinine in the treatment of Intermittents.* By Dr. JOHN SHORT.

(*Indian Annals of Med. Science*, Jan., 1858.)

"In the administration of quinine," says Dr. Short, "a complete revolution has been effected with unparalleled success in the treatment of the intermittent fever of Kamptee. Hitherto large and small doses were administered daily, and continued for several successive days, causing a large expenditure without any commensurate advantage; whilst a single dose of twenty-five grains of the salt in Europeans, and twenty in natives, has been found to be quite adequate to arrest the fever, by exhibiting the medicine immediately after the sweating stage, and following it up by bark and acid, chiretta and powdered galls, or sulphate of iron."

ART. 19.—*Of the use of Quinine in Intermittents, with or without "Preparatory Measures,"* By Dr. NICHOLS, of Buffalo.

(*Buffalo Med. Journal*; and *North American Med.-Chir. Review*, March, 1858.)

The object of this paper is to study the effect of treating cases of intermittent fever without resorting to the preparatory treatment by emetics, cathartics, &c., which are still deemed important by many practitioners; and also to institute a comparison as regards relapses and the duration of the disease, between a section of country where the disease prevails to a great extent every year, and a region not malarious.

Of 69 cases, 46 were treated in a malarious section, and 33 in a region not malarious.

Of 46 cases occurring in a malarious section, 17 were treated at once with quinia, in doses sufficient to arrest speedily the paroxysms, and 29 received preparatory treatment—viz., ipecacuanha and calomel, or calomel combined with rhubarb or jalap. Relapses were observed in 14 of the latter and in 4 of the former cases, the ratio being as 1 to $4\frac{1}{2}$ in the cases which did not receive, and 1 to $2\frac{1}{14}$ in the cases which received the preparatory treatment. The average duration of the disease, dating from the commencement of the use of quinia, was found to be less in the cases which did not receive preparatory treatment, being a fraction over six days; while in the cases which received preparatory treatment, the average duration was a fraction under eight days. Adding the period occupied by the preparatory treatment, the ratio is as $6\frac{1}{3}$ to $8\frac{1}{3}$ days.

Of 23 cases occurring in a region not malarious, all had no preparatory treatment. Of these cases, in ten previous attacks had occurred. In the latter, the average duration of the disease, after treatment was commenced, was $3\frac{1}{3}$ days. In ten of the recent cases, the average duration was $2\frac{1}{2}$ days. Of the latter, relapses were observed in two cases; of the former, in three cases.

Comparing the results as regards duration and relapses in the cases

occurring in the malarious section and not receiving preparatory treatment, and in the cases occurring in the region not malarious, the contrast is striking: the average duration in the former being $6\frac{1}{3}$ days, and the average of relapses 1 in $4\frac{1}{4}$; in the latter, $2\frac{17}{19}$ days, and the average of relapses 1 in $2\frac{3}{5}$ cases. These results are greatly in favour of the region not malarious.

The reporter analyses his collection of cases with reference to the types of the disease; the number of paroxysms in each type; the number of relapses and the duration in each type. He also analyses separately the cases of tertian type.

The following summary embodies the practical conclusions which he deduces from the results of his analytical investigation:

"From the foregoing analysis it will be seen that in cases of first attack the duration is somewhat less, and the number of cases relapsing about one-half that in cases having had one or more prior attacks. In a section of country where this fever is prevalent to a great degree every year, or in a malarious region, the duration is nearly three times that in a country not malarious, and the relapsing cases occur as frequently even under the same plan of treatment. It will be found that in a malarious region the treatment of patients by quinia alone not only diminishes the number of paroxysms and abridges the duration of the disease, but that fewer relapsing cases occur than where a preparatory course of treatment has been adopted. Even in the analysis of 40 tertian cases, although the duration of the number of paroxysms are nearly the same under the two different methods of treatment employed, yet the cases of relapse are found to be *nearly twice* as numerous where the preparatory plan was adopted."

ART. 20. — *On the treatment of Chronic Rheumatism.* By Dr. INMAN.

(*Liverpool Med.-Chir. Journal*, July, 1857.)

In a paper read some time ago before the Liverpool Medical Society, Dr. Inman adverted to the frequency of its occurrence and the multiplicity of the plans of treatment employed for it; remarking that they all, however, possessed something in common. Difficulty as to diagnosis, and confusion as to treatment, he thought had arisen from the practice of classing all sorts of aching pains under one head, as rheumatic. The uneasy sensation experienced before the access of eruptive fevers, and during the course of malignant disease, or felt by those exposed to the action of mercury or lead, and by those suffering from gout, gonorrhœa, or syphilis, and in cases where it was evident that bile or urea was mixed with the blood, and by children affected with struma—had all been set down as rheumatic, though due to most varied causes. The term "chronic rheumatism," he believed strictly applicable to cases in which there is dull pain usually coming on during the night, referred to the tendinous expansions of the muscles, the pulse not quickened, the skin warm, excepting over the seat of pain, where the temperature is usually low; the pain remitting about 4 p.m., and not recurring till some time during the night. There is usually no error of secretion, nothing visible at the seat of

pain. The duration may be from one or two days to six weeks. Deposits in the joints rarely take place; and that form which causes gradual contraction of joints and crippling of limbs, is rare. The rheumatic pain is usually symmetrical; its chief seats those parts least protected by fat and integuments. Loss of motor power accompanies the pain, which is increased by action and relieved by relaxation of the affected parts. Rheumatism is not occasioned by dry and intense cold, but by the more moderate degrees of cold, especially if the air be moist. The experience of Arctic navigators, and of the army before Sebastopol, as well as the comparative rarity of rheumatism among carmen, carters, and bricklayers, confirm this point. Firemen of ocean-going steamers appear particularly liable to it. Persons of feeble constitution and languid circulation are more obnoxious to it than those with good circulation. It is not common in women, except at advanced ages. The vigorous action of the heart helps to remove the pain, as is evidenced by the improvement which generally occurs after dinner. In a case where there was great pain and stiffness in the arms, hands, and deltoid muscles, the immersion of the arms in very warm water removed the pain for the time. Many rheumatic patients feel quite well in a warm bath; though often worse after it, from increased susceptibility. The influence of temperature on the local circulation has much power over rheumatism. Patients take cold often through sitting near cold walls, &c. The cause of the pain is probably, primarily, the contraction of the pale muscular fibres of the skin, the stagnation of blood in their capillaries; the hot aching pain which succeeds being due to reaction and dilatation of the vessels: the one efficient cause of rheumatic pain in general being deficient flow of blood through the affected parts. With regard to treatment, the author thought that no satisfactory results could be ascribed to colchicum, in large or small doses. Warm baths are useful in some cases. Nitrate of potash had proved useful in the hands of some, but he thought the iodide of potassium had a stronger claim to efficiency. Guaiacum, aconite, opium, steel, and cod-liver oil, all prove useful in some cases; and the local application of heat by packing in wet sheets, blisters, sinapisms, heated irons, red flannel, and red merino, also. The indication appears to be, to restore the strength of the individual and the vigour of his circulation. In the most troublesome form, pain in the plantar fascia was removed by perfect rest and galvanism.

Art. 21.—*On the difficult breathing of Scorbutus.* By M. Perrin.

(*L'Union Méd.*, Nos. 103 and 104, 1857.)

The following remarks are from a paper on scorbutus, as observed in the French army in the Crimea.

Difficult breathing was a constant symptom of scorbutus; but it sometimes assumed the form of such a serious complication as to constitute one of the most dangerous accidents of the disease. The scorbutic patients of the Crimean army were rapidly transported to Constantinople before the disease could compromise their lives. One

circumstance alone defied all precautions, viz., the sudden outbreak of an affection of the chest, which proved promptly fatal. In a single night three scorbutic patients of the author's regiment died in this manner, and in a few days he himself nearly underwent the same fate. The invasion of this symptom was quite sudden. To the ordinary difficulty of breaking of the disease, there succeeded, generally in the course of one night, the extremest anxiety and an almost absolute impossibility of breathing. The thorax seemed as if compressed by an iron hoop, while the severest pains traversed the base of the chest in every direction, and compelled an immoveability which only yielded to imminent asphyxia. No one can picture the anguish of an unfortunate patient thus surprised, who amidst comparative health, without fever or any cerebral reaction, finds himself suddenly condemned to absolute immoveability either in the standing or sitting position, scarcely able to articulate a syllable, and obtaining a little air only at the expense of the most violent muscular efforts. In contrast with this the pulse is small, but irregular; the heart beats feebly; the respiratory murmur, though more indistinct, is unaccompanied by *râle;* percussion detects no effusion or notable congestion; and the skin, though dry, is devoid of febrile heat.

Once produced, this accident persists until death or change of place, manifesting regular alternations of better and worse, according to the hygrometric conditions by which the patient is surrounded. The appearance of this complication is not peculiar to any special stage of the scorbutus, and it sometimes even precedes all organic manifestations of the disease. M. Perrin believes that the thoracic pains spoken of by Lind and Boerhaave are of the same nature as these here described; but he has never found them, as described by Lind, confined to one side, or modifying the piercing pains of the limbs. He is disposed to attribute their production to contraction of the diaphragm, all the muscles of relation being liable to become scorbutic, *i. e.*, to acquire the painful engorgement so commonly seen in the muscles of the thigh and calf. In such a condition a muscle cannot contract, or impart the slightest movement, but at the expense of the most vivid pain; and if we supposed the diaphragm so affected, we should have a ready explanation of the excessive difficulty of breathing, unconnected with pulmonary lesion and of the relief derived from bringing into play the great thoracic inspiratory muscles.

Art. 22.—*On the coexistence of Elephantiasis and Leprosy.* By Mr. Waring, of the Madras Medical Service.

(*Indian Annals of Medical Science*, Jan., 1858.)

The following remarks are taken from an excellent paper on elephantiasis as it exists in Travancore—a paper in which the whole subject is thoroughly investigated. Personally, and with the aid of his medical subordinates in the various out-stations, Mr. Waring investigated no less than 815 cases.

"Nothing perhaps has tended more to retard our attaining a correct knowledge of the nature and treatment of the disease now under

consideration, than the unfortunate confusion which has so long existed between elephantiasis Græcorum and elephantiasis Arabum, the former being that fearful constitutional malady, tubercular leprosy, the latter being the comparatively mild and local affection, elephantia, elephantiasis, or Cochin leg.

"Many well informed and experienced medical men, even in India, still regard them as allied diseases, but from such an opinion I must, with diffidence, be allowed to express my dissent: they present no features in common; in their origin, progress, and termination they differ essentially. The distinction between them is well insisted upon by Dr. Copland, in his admirable 'Dictionary of Practical Medicine' (vol. ii, p. 701, *et seq.*); he speaks of the distinction between them being 'very wide,' and adds that 'it (elephantiasis Arabum) is not a tubercular malady,' which true leprosy undoubtedly is.

"In 919 cases in which the conjunction or otherwise of these diseases is noticed, we find—

"No symptoms of leprosy present	867	or 94·35
Leprosy coexistent	52	,, 5·65
	919	100·00

"As a doubt might be entertained as to the accuracy of the returns from the out stations, I may add that, in the 273 cases examined by myself, 255, or 93·40 per cent., were undoubtedly free from any symptom of leprosy, 12, or 4·39 per cent., were thus affected; and 6, or 2·18 per cent., presented ulcerations which some might have regarded as leprous, but which appeared to me to be decidedly syphilitic; these, therefore, I entered as doubtful.

"In the out-station list of 542 cases, 491, or 90·59, were free from leprosy; 33, or 6·09, were affected; and 18, or 3·50, are entered as doubtful. In Dr. Pringle's Cochin list of 130 cases, 121, or 93·07 per cent., were free; 7, or 5·39, were affected; and 2, or 1·53, were doubtful. The uniformity exhibited by these three series of observations, conducted entirely independently of each other, is not a little remarkable."

Art. 23.—*On the connexion between Elephantiasis and Fever.* By Mr. Waring.

(*Indian Annals of Med. Science*, Jan., 1858.)

In the paper to which reference was made in the last article are facts which show very clearly the intimate connexion which exists between elephantiasis and fever. This fever, Mr. Waring tells us, differs comparatively little from ordinary intermittent fever, excepting that, generally speaking, the paroxysms are more prolonged and severe in their character, mostly extending over a period of three days and even sometimes longer. Most cases are attended with marked headache; and of the three stages, the cold is the most marked and severe. The distinguishing characteristic of the fever, however, is the erysipelatous enlargement of one or more of the ex-

tremities, from which a red line of inflammation may be traced along the line of the lymphatic vessels, extending to an enlarged and painful gland in the inguinal or axillary region, according as the upper or lower extremity is affected: great pain is experienced in these glands, especially on pressure, and there is much uneasiness in all the neighbouring parts. Though so enlarged and painful, they rarely take on a suppurative action; but their tumefied condition may remain for several days after the fever has subsided. The enlargement of the extremity attains its maximum towards the termination of the febrile paroxysm, and after this has passed off some days, the extremity decreases considerably in size, though it remains larger than it was before the febrile attack occurred. The resulting swelling or enlargement is, in mild cases, uniform, not pitting on pressure, and of rather lower temperature than the upper part of the limb. In some cases a little bulla appears near the ankle, and, after each attack, a large amount of serum exudes; in such instances the enlargement is generally inconsiderable. In the intervals between the paroxysms the health appears to be in no ways impaired.

Of 226 cases examined by Mr. Waring—

Fever had existed in	224	or in	99·11 per cent.
„ had not existed in	2	„	0·89 „
	226		100·00

Of the two cases in which fever was stated not to have coexisted with the elephantiasis, one (No. 85) was a Brahmin, æt. 34, whose leg was very slightly enlarged, and in whom the symptom had only existed for one month. The other was a Syrian Christian female (No. 35), æt. 30, who had had enlargement of the right leg for twelve years; the circumference at the ankle, twelve inches. She stated that she never had any accompanying fever; simply pain, and swelling of the part periodically.

Mr. Waring proceeds:

"These are the only two exceptions I had met with in 226 cases, the remaining 224 had periodical returns of fever in the following proportions:

"Febrile paroxysm, once monthly	38
„ „ twice monthly	36
„ „ three times monthly	17
„ „ four times monthly	6
„ „ five times monthly	5
„ „ once in two months	10
„ „ once in three months	24
„ „ once in four months	10
„ „ once in five months	3
„ „ once in six months	9
„ „ once in seven months	2
„ „ once in twelve months	8
„ „ once in twenty-four months	1
Irregular	43
Only had one attack	4

No fever for one year	. . .	2
„ for two years	. . .	2
„ for three years	. . .	1
„ for fifteen years (checked by opium)	.	2
„ for ten years (stopped spontaneously)	.	1
		224

"The above table is highly valuable, as illustrating the intimate connexion which exists between fever and elephantiasis. The question which naturally presents itself, on perusing it, is, in what light are we to regard this fever? which is cause, and which is effect? Are we simply to look upon the fever as one of the attendant symptoms of elephantiasis, and merely as symptomatic of inflammation of the lymphatic vessels and glands; or, are we justified in regarding the inflammation of the lymphatics, the local pain and erysipelatous swelling, and the subsequent deposition of albuminous matter constituting the disease known as elephantiasis, as a sequence or result of fever?

"The former opinion has been upheld by Hendy and most other writers, the latter by Dr. Hillary and Dr. Musgrave, and though it stands opposed to the opinion at present generally entertained by the profession, yet, after giving the subject the most earnest consideration, the conviction on my mind undoubtedly is, that fever is the primary disease, and that the albuminous deposit and enlargement constituting elephantiasis, are a secondary affection.

"The regular periodicity of the attacks tends to establish a belief in the febrile origin of the disease. However diversified may be the interval between the attacks, varying from a paroxysm every sixth day, or five times monthly to one in a twelvemonth, or every two years, yet, in the majority of instances, the febrile paroxysm is stated to recur in the same individual with great regularity. In the preceding table it will be seen that, out of 224 cases, the fever is said to have been irregular in only 43; in the remainder it occurred with great regularity, at stated periods. Whenever a disease, especially one of a febrile nature, exhibits a distinct periodicity, most medical men incline to the belief that it is of malarious origin. Periodicity is one of the most distinctive symptoms or signs of the operation of a malarious poison on the system. Now we have no knowledge of any disease analogous to malarious or periodic affection of the lymphatics, attended by fever and the subsequent deposition of lymph; under these circumstances, it seems more rational to regard the fever, which precedes any local lymphatic disturbance, as the *fons et origo mali*, and to look upon the deposition of albuminous matter in the extremities as one of the sequences of the febrile action, and of the secondary inflammation of the lymphatics.

"The succession of symptoms would also tend to establish the same belief in the origin of elephantiasis. As a general rule, the febrile paroxysm precedes the local symptoms. This has been particularly noticed at the invasion of the disease. In subsequent attacks, the enlargement of the lymphatic glands in the groin or axilla, may be observed concomitant with the cold stage of the fever; but this is of

comparatively rare occurrence, the fever in most cases preceding the local disturbance.

"The statements of the patients themselves tend to establish a belief in the febrile origin of the disease. Thus, of 652 persons who ascribed the invasion of the disease to some specific cause, no less than 458, or 70 per cent., attributed it to fever; and what more natural than that they should do so, seeing that a febrile attack had been the immediate precursor of the enlargement of the limb? With the two exceptions previously mentioned, every patient afflicted with elephantiasis, who has detailed his case to me, agreed in one point, "*no fever, no enlargement.*" In the interval between the febrile paroxysms, no enlargement of the limbs takes place; and if, from any cause, such as removal to an uninfected site, &c., the fever become checked, so likewise proportionally is the enlargement of the affected part also checked.

"My note-book supplies me with many illustrations of the last observation.

"Eetedah, Syrian Christian, male, æt. 42, merchant, both legs affected; disease commenced at the age of 26, no relations affected. He used formerly to have fever with rigors once a month. For a whole year he has now had no fever, and during this period there has not only been no increase, but rather a decrease in the size of the legs. (No. 20 in Sharetullay List.)

"Popanjan, Congany, male, æt. 61, merchant, left leg affected; disease commenced at the age of 39, only son affected, Had fever regularly for nineteen years, when it ceased; and from that time, a period of three years, there has been neither fever nor any increase in the size of the leg, which remains in *statu quo*—says it stopped spontaneously; took no remedies to check the fever. (No. 156.)

"Mythen, Mussulman, æt. 24, merchant, right leg affected; enlargement commenced at the age of 18, brother affected; used formerly to have fever twice or three times a month. He took a large quantity of black pepper to check the fever, and now, for two years, he has had no return of fever, nor has there been any increase in the size of the leg; it remains in *statu quo*. (No. 180.)

"Jyepen, Illoover, male, æt. 20, coolie, right leg affected; swelling commenced one year since, had a severe attack of fever once only, when the enlargement first appeared. No fever since, nor has there been any increase in the size of the limb. (No. 22.)

"Chaco, Syrian Christian, male, æt. 48, right leg affected; swelling commenced at the age of 30, mother and brother affected; for the first three years he used to get fever three times a month, but, for the last fifteen years, he has taken opium, and during the whole of this period he has had no fever, only slight shivering and perspiration, and there has been no increase whatever in the size of the leg. (No. 213.)

"These cases have an important practical bearing, not only as illustrating the intimate connexion between elephantiasis and fever, but as showing that, in order to check and control the former, we must first adopt measures to subdue and eradicate the latter."

SECT. II.—SPECIAL QUESTIONS IN MEDICINE.

(A) CONCERNING THE NERVOUS SYSTEM.

ART. 24.—*The legal doctrine of responsibility in cases of Insanity connected with alleged criminal acts.* By Dr. FORBES WINSLOW, D.C.L.

(*Juridical Society's Papers*, Part vi, 1858.)

Dr. Winslow divides this essay (which was read before the Juridical Society, 15th December, 1857), into five principal parts: 1. The nature of insanity in its medico-legal relation. 2. The legal doctrine of responsibility in connexion with insanity, associated with alleged criminal acts. 3. The doctrine of partial insanity, or monomania. 4. The existence of homicidal insanity and insane irresistible impulses. 5. Anomalous or mixed cases of mental disorder, involving the question of modified responsibility and the propriety of punishment. In discussing his subject under the first four aspects, he dwells principally on the oneness of the mind; and that psychological principle forms the basis of the opinions to which he gives expression. He combats the doctrine that the elementary and essential features of insanity consist in a disorder of the intellectual, as contradistinguished from a derangement of the moral, faculties of the mind, there being no such thing as separate and distinct faculties of that which is in nature one and the same; and, therefore, the courts of law were wrong in laying peculiar stress upon the presence or absence of delusions, as these might arise from sanitary causes. The important point, however, for consideration is, what might be the state of the effective or motive powers, what is the state of the volition, and to what degree has the mental diseases destroyed the healthy power of self-control over the thoughts and actions? Here arises the second branch of the inquiry; and after noticing the distinction which Mr. Fitzjames Stephens draws between tests of insanity and tests of responsibility, Dr. Winslow lays down the following as criteria of insanity propounded in the courts of justice: 1st, the presence of delusion; 2d, of delusions directly associated with the criminal act; and, 3d, a capability of distinguishing between what is lawful and unlawful, the capacity of knowing right from wrong, good from evil. These tests he holds to be erroneous, as their absence does not necessarily establish in the offender the *malus animus, mala conscientia*, which are the ingredients of criminal guilt. The tests of responsibility, however, upon which the courts acted, might be gathered from the opinions of the judges, delivered in the House of Lords in 1843. First, a person labouring under partial delusions only, and who is not in other respects insane, notwithstanding he committed a crime under the influence of the insane delusion that he is redressing or revenging some supposed grievance or injury, or producing some public benefit, is liable to punishment, if he knew at the time of committing such crime

that he was acting contrary to the law of the land. Secondly, to establish a defence on the ground of insanity, it must be clearly proved that at the time of the committing of the act the party accused was labouring under such a defect of reason from disease of the mind as not to know the nature and quality of the act he was doing, or if he did know it, that he did not know he was doing what was wrong. Thirdly, if a person under a partial delusion only, and not in other respects insane, commits an offence in consequence thereof, he is to be considered in the same situation, as to responsibility, as if the facts in respect to which the delusion exists were real. From these rules of law arises the consideration of partial delusions in their legal relations to crime committed by persons in other respects insane, under the impression that they were doing right, the legal doctrine of partial insanity, and the knowledge of right and wrong, as conclusive evidence of responsibility in cases of imputed insanity. With regard to the first view taken by the judges, they seemed to overlook the distinction drawn by Lord Erskine between the cases of Hatfield and Lord Ferrers, namely, that when a madman commits a crime under the influence of an impression which is entirely visionary, and purely the hallucination of insanity, he is not the object of punishment; but that, though he may have shown insanity in other things, he is liable to punishment if the impression under which he acted was true, and the human passion arising out of it was directed to its proper object. Dr. Winslow, however, goes further than Lord Erskine, and maintains that if a man shows insanity in any one respect, he ought to be considered as a lunatic in all; and thus he disposes of the third point under which he proposed to consider the subject of his discourse, altogether denying the existence of such a disease as monomania. He quoted the authority of several continental physicians of great experience in the treatment of mental disorder in support of his views. Under the fourth head, he mentions a number of cases to show the existence of homicidal insanity, and insane irresistible influences; and passes on to consider how far the proof of a man being actuated by such feelings in the commission of a murder should modify his punishment. He is unwilling, he says, to associate the word punishment with a case of that kind, and thinks that such a proof should entitle him to his acquittal. As he would, however, even so, be confined for life in a lunatic asylum, he would in reality be subjected to a punishment much more severe than if he were publicly executed.

ART. 25.—*Insanity among Prisoners in Penitentiaries.* By M. SAUZE.

(*Annales Medico-Psychologiques*, 1858; and *British Med. Journal*, Feb. 20, 1858.)

M. Sauze has endeavoured to determine the real origin of the cases of insanity which are observed in prisons, and to show that solitary confinement (*l'emprisonnement cellulaire*) exercises no special influence on the production of mental alienation and suicide. M. Ferrus has stated that those who have given special attention to this subject have declared, that only in rare instances have they been able to attribute mental diseases merely to the depression produced by de-

tention. M. Sauze has collected numerous facts which he believes to confirm this statement.

The study of "penitentiary insanity" shows that malefactors and criminals are too often confounded with the insane. M. Ferrus, and all who have made prisons a subject of attentive study, have recognised the facts, that certain criminals show great analogies with insane persons; that a large portion of condemned persons consist of men of imperfect intellect, driven to crime by the faults of their organization; and that most of the cases of insanity met with in prisons are due to antecedent individual predispositions. MM. Lélut and Tardieu have arrived at conclusions altogether favorable to the cellular system. M. Lélut has established the fact that, in prisons conducted under this system, the number of insane is less than in prisons conducted on the old plan. If it is true that the proportion considerably exceeds that met with in a free and honest population, this is due to the circumstance to which reference has just now been made. Dr. Prosper de Pietra-Santa, in a memoir read before the Academy of Medicine, has arrived at a totally different conclusion. He maintains that insanity and suicide are much more frequent in the Mazas prison than in others. But he does not, M. Sauze observes, appear to have taken care to ascertain the interpretation of facts, to scrutinise the antecedents of prisoners, to take into account their individual predispositions, &c. The cellular prison of Mazas—a place for the detention of prisoners in a state of *prevention* only—of necessity furnishes a very bad element of comparison; and it is, *à priori*, conceived that suicides would there be more numerous, and that insane persons would be found there whose mental condition had not been at all understood at the time of their arrest.

M. Sauze, in his capacity of physician to the prison and lunatic asylum at Marseilles, has observed the insane both in prison and up to the end of their treatment in the asylum. He has not only ascertained the existence of insanity, but has sought out its first symptoms, however slight they may have been; and he has arrived at the conclusion that, in the greater number of the cases, the insanity has been anterior to the imprisonment; and that several times persons have been sent to prison who were in need of treatment in asylums.

The cellular prison at Marseilles, of which M. Sauze has been physician two years, is constructed on the model of that of Mazas. The system followed resembles that of the Philadelphia prison. Isolation is rigorously maintained day and night, being accompanied by labour, walking, exercise, and frequent visits. M. Sauze has related at length fifteen cases; of which, however, an analysis is not here given. To these are added twenty-nine cases of imbecility in various degrees, accompanied by malformation of the skull; thus making a proportion of forty-four insane in a population of prisoners which, in two years, has amounted to about 2400. This proportion at first sight seems large; but in three only of the cases was the insanity first manifested in prison, and even in these three it was possible to demonstrate the existence of numerous predisposing causes dating several years back. Thus M. Sauze finds three insane in 2400—a proportion very small compared with that found in a free and honest

population, which, according to M. Ferrus, gives one in 1830, and, according to M. Lélut, two in 1000. The Marseilles asylum receives an almost equal number of cases of insanity from the house of detention, which is managed under the old *régime*, and from the cellular prison.

M. Sauze does not attempt to deduce absolute conclusions from his statistics, imperfect as they are, and supported by the experience of two years only. His aim has been only to make approximate conclusions, and comparisons which may point out the necessity of further researches into penitentiary insanity. The facts observed by M. Sauze have led only to the general conclusion, that the cause of penitentiary madness is to be sought less in imprisonment, whatever its form, than in the nature of the prison population. "In imprisonment as well as in freedom," says M. Ferrus, "almost all individuals attacked with insanity have been predisposed to the disease. A man, in fact, whose faculties are exactly balanced, may, without losing the free exercise of perfect reason, resist the hardest reverses in life, the most touching losses, and even excessive pain. The most prolonged imprisonment leaves his moral sense intact, and his intellect quite clear."

M. Sauze believes that he can conclude from his observations that most prisoners in whom insanity has been observed were diseased before entering prison, often even before their sentence, and at the time when they committed the crime. In those who have become insane subsequently to imprisonment, numerous predispositions can always be found; whether in a state of imbecility or epilepsy, or in previous attacks of mental alienation, or in a life of privation and misery, of debauch and excesses of all kinds. Insanity in prison may also arise from causes independent of the prison system. Thus, among the cases observed by M. Sauze, were two individuals who attempted suicide, and manifested symptoms of insanity, a short time before the expiration of their punishment: these were Piedmontese deserters, who feared that they would be sent back to their native country, where they had incurred the punishment of death.

Condemned persons may be imprisoned during the commencement of an attack of insanity, during its incubation, or they may have intermittent insanity, and the time of an attack may happen to fall within the period of imprisonment. Here there are so many sources of error.

M. Sauze insists forcibly on the analogies which exist between the insane and a certain proportion of prisoners, who have not a correct notion of good and evil, and who would have a right to the benefit of irresponsibility. Certain individuals are sent by turns to an asylum or to a prison, according to the view taken of their case by the magistrate. M. Sauze has met alternately, in the Marseilles prison and in the asylum for the soldiers of Algeria, men of defective organization, who only leave an asylum to be sent to a prison.

In referring insanity to causes for the most part foreign to imprisonment, M. Sauze does not pretend to deny entire the influence of incarceration. Imprisonment produces a state of depression and melancholy very favorable to the development of insanity. It is true,

however, that the sadness generally disappears at the end of some days, and that the culprit becomes habituated to the rigors of the prison regulation. Insufficient food, want of exercise and of air, may also act in the long run as debilitating causes, like privations of any kind in free life, and may give rise to mental alienation. Insanity may also arise from other diseases characterised by debility and constitutional exhaustion, which prevail in prisons.

M. Sauze sums up his memoir in the following conclusions: 1. The causes of penitentiary madness are generally independent of imprisonment, whatever be the system followed. 2. The insanity is generally anterior to entrance into prison, and even to condemnation. 3. When developed in prison, it is even then the result sometimes of causes foreign to imprisonment. 4. The greater number of causes of penitentiary madness are inherent in the prisoner and not in the prison. 5. They consist especially in individual predispositions, such as hereditary tendency, imbecility, idiotcy, or epilepsy; previous attacks of insanity; or a life of privation and debauchery. 6. There are the closest analogies between the insane and a certain class of prisoners, consisting of men of defective organization. 7. A certain portion of the inmates of prisons would be better placed in lunatic asylums. 8. The number of insane persons condemned to prison is considerable. 9. The cases of insanity which are manifested in prisons are not due to the influence of incarceration alone; they are connected with various causes of general debility, especially insufficient diet.

ART. 26.—*To what degree is the mind affected in cases of Apoplexy, and Hemiplegia.* By Dr. M'CREEDY, Physician to Bellevue Hospital.

(*New York Journal of Medicine*, Sept., 1858.)

This inquiry, irrespective of its medico-legal relations, is of interest and importance to the medical practitioner. Dr. M'Creedy brings to bear upon it the results of an analysis of cases collected from different authors, as well as instances falling under his own observation, and communicated to him by medical friends. From an examination of "a collection of cases of apoplexy," by Mr. Copeman, of London, published in 1845, he arrived at the following conclusions: "In all, out of a record of two hundred and fifty cases, fifty cases have been taken in which the patient had recovered from the first effects produced by the apopletic stroke. They are all the cases contained in the book in which such recovery had taken place, and in which the cases were clearly of an apoplectic character. Yet in no one of the cases is there the slightest indication that the patient was left with a mind, I will not say reduced to a state of imbecility, but impaired in any marked degree. They all, as far as the mind is concerned, with the exceptions to be mentioned, recovered; recovered perfectly; were restored to their usual state; returned to their previous occupations. In two instances the faculty of speech was either deranged or lost, and in those instances their physicians assert that the faculty of language, not reason, was deranged. In the third instance the patient is stated

to have recovered with an impaired memory, and with some confusion of thought; but a merchant seventy-three years of age, who, after partial recovery from a severe apoplectic seizure, is enabled to labour for his support by writing for the weekly papers, may be esteemed to have still possessed a fair share of intellect and energy. The second attack left him yet more prostrate, very much weakened in body, and unable to do anything for the support of his family. From the third attack he never recovered; still there is nothing like imbecility: he lies for months in a feverish condition, alternating between coma and delirium, and even a few days before his death he partially recovered and talked in a rational manner with his wife."

The foregoing conclusions are corroborated by the results of an examination of a series of case contained in Andral's *Clinique Médicale*, and in the *Anatomie Pathologique* of Cruveilhier. These cases, like the preceding, are quoted in brief detail by the writer. In expressing the results of this examination, the writer says: "Here, then, are sixteen cases in which the condition of the intellect before the attack was obscured, in which the nature of the disease was verified by post-mortem examination—being all that are contained in the *Clinique Médicale* of Andral, and the *Anatomie Pathologique* of Cruveilhier, and reported by men whom every one will allow were competent, careful, and conscientious observers—in which the hæmorrhage was situated in almost every part of the brain, presenting every degree of severity compatible with the continuance of life, many of them living for years after the occurrence of the apoplectic seizure, and yet in only two of these was there any decided improvement of the mind noticed."

The writer adds: "Perfectly in accordance with this have been the results of my own observations. At Bellevue, the great pauper hospital of the city, there are always a number of hemiplegiacs; but since my attention has been directed to the subject, I have seen no case in which hemiplegia has been the consequence of a well-marked apoplectic seizure, in which I have found the intellect seriously impaired. In some of these cases the first impression of the observer is wholly unfavorable to the intelligence of the patients; the distorted countenance, the impaired speech, and the motiveless tears or laughter, give them an appearance of utter imbecility; yet a patient examination will commonly discover an amount of intelligence entirely unexpected." * * * * "From the facts given above, no other conclusions can be drawn than that any impairment of mind, as a direct consequence of apoplexy, after the patient has recovered from its primary effects, must be an exceptional occurrence. That the apoplectic seizure may hasten the approach of senile atrophy of the brain is, as before stated, probable; when atrophy has already commenced, an apoplectic attack may undoubtedly quicken its progress, and, in such a case, the friends of the patient would naturally attribute the rapid decay of the mind wholly to the apoplectic seizure. This, I think, I have myself seen; and as apoplexy becomes more common as life advances, such cases may not be unfrequent. The confusion of mind, the difficulty in pursuing a train of thought, of which apoplectics are apt to complain, is to a great extent the mere

result of diminished nervous energy. They comprehend well, and judge correctly, but, before their general health is confirmed, they can no more think continuously than they can take a long walk, or perform any other act demanding a considerable expenditure of nervous force. It is not the brain specially that is affected—it is the system at large. Of all the faculties, memory, either special or general, is most apt to be impaired, and this impairment patients are always ready to admit and complain of. As the patient recovers, the memory commonly improves; and if no new attack supervene, this improvement is progressive for years." * * * "Whence, then, arises the number of imbeciles who are to be found in every almshouse? Partly, doubtless, from the cases already mentioned, in which senile atrophy is prematurely caused, or its progress hastened by the occurrence of apoplexy. And let us recollect the state of isolation and neglect from which such persons frequently, often necessarily suffer, is in itself a main cause of a weakened intellect: the mind rusts out for want of exercise."

The writer details a series of cases in which, while the hearing remained unaffected, the patient's consciousness entire, and no delirium, the faculty of speech was either lost or perverted. He remarks on these cases as follows: "Here, it will be seen, are eleven well-marked cases of hemiplegia, three of them complicated with epileptic convulsions, and all of them with loss or perversion of the faculty of speech. Besides the cases here recorded, three more have come to my knowledge, the subjects of which, I believe, are still living. This shows conclusively the loss of speech, as an accompaniment of hemiplegia, to be no *very* rare occurrence. Of the whole fourteen cases, two have perfectly recovered the use of speech; two have recovered it to a partial and limited extent; the others still, I believe, remain speechless. From the cases recorded in the journals to which I have access, I believe that recovery from perversion of the faculty of speech is more common and perfect than when the power of articulation is either wholly lost or confined to a few monosyllables. Direct medication, except in so far as it improves the general health of the patient, seems to have no effect on the lost faculty; more is to be hoped for from careful, long continued, and well-directed exercise of the local organs by the patient himself."

The foregoing conclusions are certainly at variance with the views inculcated by medical writers and commonly held by practitioners. The general belief is, that after an apoplectic seizure, as a rule, the mind is more or less impaired, and in severe cases the patient is apt to fall into a condition of partial or complete imbecility. Epilepsy is is also supposed to tend intrinsically to induce deterioration of the mental faculties in proportion to the frequency and severity of the paroxysms. Assuming that the writer's conclusions are correct, it is in a great measure owing to the prevailing error on the subject that the faculties of the mind are, in a certain proportion of instances, permanently damaged; and it becomes a very important point in practice to enjoin, under judicious restrictions, that degree of exercise of the mental faculties which shall secure their healthful if not vigorous activity.

Art. 27.—*Case of Hydrocephalus treated by puncture.* By Mr. Lawrence, Surgeon to St. Bartholomew's Hospital.

(*Medical Times and Gazette*, April 3, 1858.)

The following case is reported by Mr. Chippendale, Mr. Lawrence's house-surgeon.

Case.—A delicate, ill-nourished, hydrocephalic child, seven weeks old, was brought on December 29th to the hospital. The history that the mother gave was as follows: She stated that the child at birth did not present any unusual appearance, but that about three weeks afterwards, she first observed a swelling at the back of the head, and from that time the head had enlarged with a rapidity quite out of proportion to the growth of the other parts of the body.

Unfortunately there was no opportunity of ascertaining by measurement the exact circumference and breadth of the head previous to the evacuation of the fluid, but as far as one could form an opinion from a hasty examination with the hand, there could not have been a less interval than three inches between the parietal bones, and from the coronal suture to the apex of the occipital was a place of at least seven. There were some slight peculiarities in the shape of the head. It differed in some respects from the ordinary appearances of hydrocephalus. There was a want of symmetry about the head, from the bones not being equally expanded. For instance, there was scarcely any protrusion of the frontal bone, not that marked prominence which is generally seen, and might have been expected in the present case, considering the quantity of fluid evidently contained in the cavity of the cranium. It was evident, however, from the protrusion and downward direction of the eyes, that the orbital plates were depressed. The occipital bone was thrust downwards and backwards, so that it was nearly horizontal in its direction, but this may have been due to the position in which the child habitually lay, allowing the fluid to gravitate towards the posterior and most dependent part. The same explanation may account for the absence of lateral symmetry, the left parietes projecting more than the right. This, however, did not disappear on the position of the child being changed.

The child lay in its mother's arms in a semi-comatose state, apparently not taking notice of anything passing around, occasionally giving a low moan. The head drooped helplessly on one side, the vertebræ and muscles not being sufficiently strong to maintain it in the erect position. The eyes were prominent, directed downwards, and constantly rolling from side to side; and, to add to the disfigurement, there was divergent strabismus. The pupils were rather dilated. Such had been the state of the child for the last few weeks; but of late the head had enlarged so rapidly, and the little sense or power of perception which the child possessed had become more dim, while at the same time the nutrition of the other parts seemed almost at a stand-still. Under these circumstances, so hazardous to the existence of the child, no other course was open than a resort to the trocar. After some difficulty the scruples of the mother were overcome, and her consent obtained. A very fine trocar and canula were introduced into the coronal suture, about an inch or so from the middle line, in order to avoid the longitudinal sinus, and eight ounces of clear, pale fluid drawn off.

It escaped with a slight saltatory motion, being influenced, I presume, by the movements of the brain, or by the cries that the puncture evoked. The

effects of the removal of the pressure were immediate and decided. While the fluid was flowing the child gave a louder cry than it had ever before uttered, and showed other signs of being more lively. The eyes receded somewhat from their former prominent position, and assumed a more natural direction; the rolling ceased; the strabismus became less marked. The bones of the cranium collapsed, their serrated margins being distinctly visible. More might have been drawn off, but it was not thought advisable to do so. The child bore the operation remarkably well, no convulsions ensuing. Strips of plaister were then applied in a circular manner around the head, to compensate for the pressure of the withdrawn fluid.

The child was brought to the hospital four days afterwards. The mother stated that the child had appeared much relieved, and had been more cheerful and lively for the first two days, but on the third it had been very restless and feverish, and from that time it had relapsed into the same drowsy condition. The head, on the removal of the strapping, appeared very tense, and to have acquired almost the same dimensions. The surface of the head was hot. Mr. Lawrence repeated the puncture, but in a different situation, selecting the posterior part, as the fluid gravitated in that direction. Ten ounces were let out. A little hæmorrhage followed the perforation, and the child became rather blanched. I thought I observed a few slight, transient, convulsive movements of the face, and a clenching of the hands. No compression was employed this time, merely cold applied, and Hyd. c. Cretâ, gr. iij. ordered to be taken every night. The child was again brought on Tuesday last, four days after the second puncture. The head had not enlarged to the same extent as before. The child had not been so drowsy, but, on the contrary, more restless. Its appearance was much more animated. Dose of Hyd. c. Cretâ increased.

Another ten days elapsed before the child was again brought to the hospital. The mother stated that during that time the child had continued to improve in health, and had shown more animation. The head continued about the same size as before. Not having seen or heard of the child for more than three weeks, I proceeded to inquire at the mother's residence, but unfortunately the family had left a few days before, and the landlord was unable to inform me where they had moved to. I learnt, however, from him that the baby had died about ten days back, apparently from innutrition; that the head had not, in his opinion, increased in size, and that it had no convulsions.

Art. 28.—*New researches on the general Paralysis of the Insane.* By M. Linas.

(*New York Journal of Medicine*, March, 1858.)

The following quotation is taken from an excellent report by Dr. Brown-Séquard on the recent advances of the medical sciences in France:

"This affection, which has been, for the first time, well described by some French physicians, among whom particularly Bayle and Calmeil, has lately been the object of a very remarkable inaugural dissertation by M. Linas. One of the principal questions examined by this young physician concerns the nature of this disease. Is it the effect of an inflammation of the encephalon or of its membranes, as Bayle, Delaye, Calmeil, Parchappe, and others admitted, or is it a

purely *nervous* affection of the brain, as Lélut and others have maintained?

"Already Bayle had opened one hundred corpses of paralytic insane, and Calmeil forty-seven. They had found the meninges of the convexity of the cerebral lobes opaque, injected, hardened, infiltrated with serosity, and offering frequently granulations or false membranes. M. Linas has opened one hundred and fourteen bodies of paralytic insane. In twelve cases he has found the pia mater excessively injected. The cerebral substance was quite full of blood, the gray matter being from an intense red to a dark violet. In twenty-eight cases, besides the preceding alterations, there were adhesions between the convolutions and the meninges. In seventy-four cases, the meninges were infiltrated, opaque, and as tough as a fibrous membrane; the cortical substance of the brain, sometimes violet, sometimes yellowish, according to the degree of the paralysis, always softened, less thick than in normal brains; the white substance injected, and sometimes infiltrated; the convolutions meagre, and the whole mass of the brain more or less atrophied.

"In thirteen cases, besides the preceding alterations, there was one or many small circumscribed places where the encephalitis had been more violent than elsewhere. In eight cases there were also effusions of blood.

"From these facts it results positively that the paralysis of the insane depends upon a chronic inflammation of the brain and its meninges. Whether the disease begins in the membranes, as Bayle had said, or in the brain itself, as M. Calmeil maintains, is a question of comparatively little importance. The great point is, that the brain is always inflamed. M. Calmeil has ascertained with the microscope that in doubtful cases, when the brain did not seem to be much altered with the naked eye, there were, nevertheless, all the microscopical appearances of inflammation.

"M. Linas relates cases to prove that an acute encephalitis may cause the paralysis of the insane.

"As regards the first symptoms of this affection, M. Linas declares that sometimes intellectual disorders first appear, and in other cases muscular paralysis and insanity appear at the same time. It has been said that there was always what is called by the French ambitious delirium. But Parchappe, Trélat, Lasègue, have shown that there are exceptions to this rule, and that, therefore, there is nothing specific or essential in this symptom. M. Linas goes farther, and he calls this opinion a parodox. According to him, the delirium of paralytic insane has sometimes the monomaniac form, sometimes the hypomaniac, and in other cases the maniac; but he acknowledges that ambitious ideas are extremely common."

Art. 29.—*On Facial Paralysis as a sign of cerebral hæmorrhage.* By M. Trousseau.

(*Gaz. des Hopitaux*, No. 84, 1857.)

M. Trousseau observes that in facial paralysis properly so called, that in which the seventh pair is alone concerned, the loss of motor power is ordinarily complete and absolute, while when it depends upon cerebral hæmorrhage it is never complete. There may be some difficulty in the movements of the mouth, but nothing comparable to that seen in paralysis of the seventh pair; and we never find the paralysis of the orbicularis palpebrarum carried to the same extent. The patient is always enabled to cover a portion of the eyeball, which is not the case in facial paralysis. M. Trousseau, in fact, has never once witnessed paralysis of the seventh pair which was not complete at least at its commencement, nor, on the other hand has he seen a single case of facial paralysis, dependent upon cerebral lesion, and accompanied by general hemiplegia, in which the paralysis of the orbicularis was carried thus far. It is therefore a diagnostic sign of importance.

Art. 30.—*On the effect of Galvanism upon the augmentation of hearing which may exist in Facial Paralysis.* By M. Landouzy.

(*Gaz. Méd. de Paris*, March 13, 1858.)

M. Landouzy was the first to pay particular attention to the condition of the hearing in cases of facial paralysis, and his investigations may help us to decide the important question, whether the brain is or is not affected in these cases. If the hearing is diminished, it may be supposed that there is some actual lesion in the brain or in the auditory nerve; if the hearing is more acute, there is reason to believe that the facial paralysis is dependent on simple paralysis of the facial nerve or of its tympanic branch; if the hearing is unaffected, it is said that the paralysis of the facial nerve does not implicate the tympanic branch.

M. Landouzy considers that the exaltation of hearing in facial paralysis, depending upon simple paralysis of the facial nerve, depends upon paralysis of the m. internus mallei, and he relates a case in which the exalted hearing became natural during the passage of the galvanic current through the ear, and exalted again when the circuit was broken. In this case it is supposed, first of all, that the membrana tympani is relaxed by the paralysis of the m. mallei internus, that the sonorous vibrations are more marked in consequence, and that this is the reason why the hearing is rendered more acute; and in the next place, it is concluded that the effect of this current is to throw the paralysed muscle into a state of contraction, to stretch the membrana tympani, and in that way to render the hearing less acute by diminishing the sonorous vibration transmitted to the brain.

It is, however, somewhat questionable whether this explanation is altogether satisfactory.

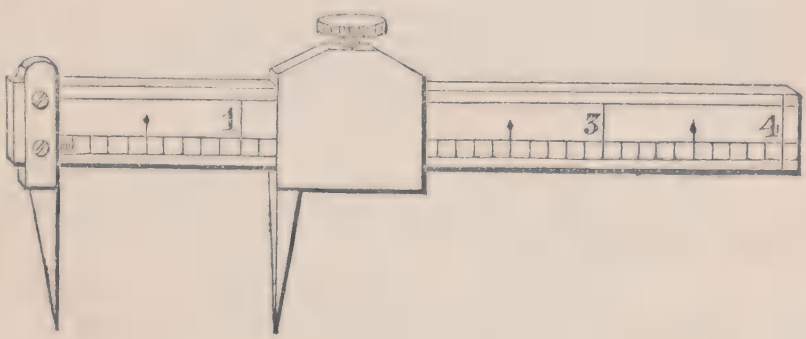
Art. 31.—*The Æsthesiometer.*

By Dr. Sieveking, Physician to St. Mary's Hospital.

(*Medico-Chir. Review*, Jan., 1858.)

This little instrument has been contrived and employed by Dr. Sieveking for the purpose of aiding in the diagnosis of certain forms of nervous diseases. Its employment is based upon the principle, that the capability of distinguishing the distance between two points at different parts of the body varies with the tactile sensibility of the respective regions. This power, in health, follows the general law of symmetry governing the body; hence, where in morbid conditions the tactile insensibility of one side is impaired, we have a means of determining the relative extent of the impairment by ascertaining at what distance the individual can feel two distinct impressions from two sharp points, slightly pressed upon the skin. The absolute impairment of tactile sensibility may be ascertained by comparing a given result with the tables of Professor Weber, which are contained in most handbooks of physiology.* Thus, if a person in health is able to recognise as two distinct impressions at the tips of his fingers, points one tenth of an inch apart, it follows that if we find him unable on one or both hands to distinguish more than four tenths, there must be a serious impediment to the reception or conduction of tactile impressions. The nature of the impediment must of course be determined by other evidence. It is manifest that, by applying an instrument to measure the tactile sensibility of different parts involved in a paralytic affection, we secure a more trustworthy standard to judge of its extent and character than if we trust to the patient's description of his sensations, or the ruder modes of pinching and pricking ordinarily employed.

There are three main classes of circumstances in which the Æsthesiometer, of which the annexed woodcut gives a reduced illustration, has been found useful



1. In actual paralysis, to determine the amount and extent of sensational impairment.

2. As a means of diagnosis between actual paralysis of sensation

* Müller's 'Elements of Physiology,' translated by Dr. Baly, vol. i, p. 701.

and mere subjective anæsthesia, in which the tactile powers are unaltered.

3. As a means of determining the progress of a given case of paralysis for better or for worse.

It would be superfluous to give illustrations of each of the three classes of cases in which the æsthesiometer may afford us assistance. The first and third speak for themselves; to obviate the possibility of a misunderstanding of the second, an instance is subjoined which will serve as an illustration:

E. M'M., æt. 52, suffered for six months before the first consultation from numbness and formication of the left hand, with severe nocturnal pains along the tips of the fingers and at their metacarpal ends; the patient rarely had pain in the thumb and none in the palm of the hand. There was frequent vertigo. To determine the character of the numbness, the æsthesiometer was applied, and the patient was found to distinguish one tenth of an inch equally well at the tips of the middle and third fingers of both hands; the instrument aided in the determination of the diagnosis by showing that the numbness was purely subjective, and not the result of a true paralytic affection.

The instrument is one of very simple construction, being essentially what is known to mechanics as a beam compass. It consists of a rod of bell-metal, four inches in height, graduated into inches and tenth of an inch. At one end is a fixed steel point; another steel point is made to slide upon the beam, and can be fixed at any distance from the first, by a screw which works at the top of the slide. The experimenter notes down the smallest interval at which the person experimented upon is able to recognise two impressions when the points are gently and simultaneously pressed upon any given part. Certain precautions are necessary here as in all other experiments, in order to ensure trustworthy pursuits.

It is important that the patient should not know what is expected of him; therefore it is well not to inform him of the object with which the instrument is applied; at whatever part it is used, it is easy to prevent the points from being seen, so that the eye may not aid in the determination of the tactile impression. It is equally necessary to make the two points impinge upon the surface at the same time, in order to prevent the production of two successive impressions, which would necessarily alter the value of the result.*

ART. 32.—*The pathology of Convulsions, with especial reference to those of children.* By Dr. REYNOLDS, Assistant-Physician to the Westminster Hospital.

(*Liverpool Med.-Chir. Review*, Jan., 1858.)

The following is an abstract of the contents of this paper:

I. All vital actions are accompanied by, and depend on, physical changes in the living organism.

II. Modifications of vital action depend on modified physical conditions. Some symptoms of disease are modifications of vital actions,

* The instrument may be obtained from Mr. Becker, Mathematical Instrument Maker, 39, Newman Street, Oxford Street.

and there are two general modes in which they are, or may be, related to the nutrition change:

1. Negative symptoms—*i. e.*, those which consist in the negation of vital properties, such as paralysis, anæsthesia, &c. — may depend directly on a "solution of continuity," or some other distinct organic disease; but

2. Positive symptoms—*i. e.*, those which consist in the alteration or excess of vital action—cannot depend directly on such textural condition, but must have for their immediate cause some modification of the minute interstitial processes.

III. Convulsions, being essentially modifications of vital actions, must depend on modifications of physical conditions. Though no "lesion" is discoverable, we are warranted in the conclusion that nutrition is affected.

IV. Convulsions depend on modified nutrition changes in the nervous centres.

V. The proximate cause of convulsions is the same in all cases when the convulsions are the same; and the lesions discovered in the nervous centres or elsewhere are not the proximate causes of convulsions, for they differ in locality and kind, and have no constant proportion to the symptom in question.

VI. The proximate cause of convulsions is an abnormal increase in the nutrition changes of the nervous centres—an increase in relation to time or to mobility.

VII. The remote causes are such as induce the abnormal increase. There are three general modes in which these causes operate:

1. The nervous centres may be involved in a *general* nutrition change—*e. g.*, as during dentition, at puberty, in Bright's disease, scrofulosis, rickets, &c.

2. The nervous centres may be the seat of *special* disturbance owing to organic lesion, as tumour, spiculæ of bone, &c.

3. Eccentric irritations may affect their nutrition through afferent nerves.

VIII. The diagnosis in convulsions is that of the *remote* cause, and the first step is to ascertain to which of the above three categories the case belongs. In children, the diagnosis will turn on:

1. The *duration* of the paroxysm;
2. The *frequency* of its repetition;
3. Its *local* or *general* distribution; and,
4. Interparoxysmal symptoms.

The last are of the most value; and the positive or negative character of the symptoms, together with local distribution, afford material assistance in this process.

IX. The *treatment* of convulsions is guided by the diagnosis, and will consist in the removal or palliation of eccentric irritations, the improvement of general nutrition, and the treatment of local disease.

Art. 33.—*Case of Hysteria simulating Hydrophobia.* By Dr. M'Gugin.

(*Iowa Medical Journal*, July and Aug., 1857; and *North American Med.-Chir. Review*, March, 1858.)

Case.—The patient was a young married female, of extraordinary mental acquirements, and highly impressible. The attack occurred shortly after the death of an infant, her only child. It commenced with pain in the head, without febrile movement. The bowels were constipated, the urine pale, and an attempt at swallowing was undertaken with reluctance and performed with difficulty. Shortly after, she became subject to paroxysms, during which she complained of thirst and demanded water, but on bringing it to her lips violent spasm of the larynx was excited. "When first attempting to drink, the appearance of the water seemed to produce a light shivering, as if of dread, and after some hesitation she would hurriedly, apparently with a feeling of desperation, seize the cup, and with a sudden effort attempt to gulp it down, during which respiration was suspended; and after the effort of swallowing, her conduct resembled that of an individual who had been for a time immersed in water of a low temperature. Then followed a wild expiratory screech. During these fits her countenance manifested the wildest frenzy, and all the muscles of the body seemed tensely contracted." These paroxyms were excited by the unexpected entrance of strangers, a sudden noise, or a current of cold air.

Aphrodisiac symptoms supervened, and she finally fell into fatal coma. The case was treated by antispasmodics and the inhalation of chloroform.

Art. 34.—*On the use of oxide of zinc in Epilepsy.* By Dr. Radcliffe.

(*Epilepsy and other Convulsive Affections, their Pathology and Treatment.* 2d edition, post 8vo, Churchill, 1858.)

The present fancy for oxide of zinc has been caught from M. Herpin, who has devoted a substantial volume* to the purpose of showing that many cases of epilepsy may be cured by the vigorous and persevering use of this remedy. The doses used by M. Herpin are very large, or very soon they became so; and if they caused any inconvenience, it was only during the first few days of the treatment, when there might be a little nausea or vomiting or diarrhœa. In the cases of an adult 3 grammes of the oxide are mixed with 4 grammes of powdered sugar, and divided into twenty doses, of which one is to be taken three times a day. These twenty doses serve for the first week. After this the quantity of oxide is increased every week by the addition of 1 gramme (about 15 grains); and in this way, if the patient persevere, he will take 52 grammes in eight weeks, 132 grammes in fourteen weeks, and 327 grammes in about six months. In the case of an infant under twelve months, the quantity given in the first week is 0·25 gramme, and the addition made on each successive week is also 0·25, so that 5·25 grammes will have been taken in

* 'Du prognostic et du traitement curatif de l'Epilepsie,' Paris, 1852.

six weeks, 23 grammes in three months, and 68 grammes in six months. Sometimes at first it was found desirable to omit the dose taken in the morning, in consequence of the stomach being a little rebellious, and once or twice it was necessary, on account of the same difficulty, to go on for longer than a week before beginning to increase the dose, but these cases were exceptional, and, when they did occur, relief was often obtained at once by giving the remedy in the form of a pill instead of in the form of a powder. And, lastly, it is a fundamental rule in this plan of treatment to persevere in the use of the remedy, and, in as short a time as possible after the cessation of the fit, to give a larger quantity than had been given previously. This is to prevent relapse. Thus, if two months had been spent in the treatment and 45 grammes of the zinc had been necessary to suppress the attack, it would be necessary to go on for another month, and, at the increased doses, to give at least 100 grammes before giving up the treatment; or, if the zinc had been given for three months, and as much as 125 grammes taken before the attack yielded, it would be necessary to go on for three months longer, and not to give up until 300 grammes had been taken.

In the work in question M. Herpin relates thirty-eight cases of epilepsy or epileptiform disease, in nearly all of which he gave the oxide of zinc in the manner which has been mentioned, and the question for us to consider is whether these cases permit us to rest content with the conclusion which has been drawn from them. The question is important, for this may be said to be the main body of the evidence in favour of zinc as a remedy in epilepsy. Of these cases, then, three are related as incomplete from the patient having been lost sight of, two as instances of spontaneous cure, seven as instances of amendment, nine as instances of failure, and *seventeen as instances of cure after treatment*, so that, setting aside the seven cases of mere amendment as not altogether conclusive, the number of cases at once falls from 38 to 17. But these seventeen are not be taken without further reduction. Thus, one (Case 15) must be excepted as having had no zinc at all; and others (Cases 8, 14, 21, and 22) as being, to say the least, very dubious cases of epilepsy. In Cases 8 and 14 the patients were *infants*, whose ages respectively were ten months and seven months. In the first, convulsion, which had recurred repeatedly for five months, ceased immediately on taking the zinc; in the second, convulsion of three or four days' duration recurred repeatedly during the first fortnight of the treatment, and then ceased. In Cases 21 and 22, each patient was *upwards of seventy years of age, and each patient had only one fit*; in one the person continued well for years afterwards; in the other an attack of apoplexy occurred at the expiration of three years, and the person remained hemiplegic until his death, which occurred three months afterwards, but there was no repetition of the convulsive seizure. In a word, Cases 8 and 14 may be regarded as cases of infantile convulsion, rather than as cases of epilepsy in the ordinarily restricted sense of the word, and Cases 21 and 22 as cases of epileptiform convulsion, depending, in all probability, upon congestion of the brain—cases, that is to say, in which it is not easy to point to the non-recurrence of

the convulsion as a proof of the efficacy of the treatment, simply because the convulsion does not recur in such cases in the same sense as that in which it recurs in simple epilepsy. Indeed, as is well known, the convulsion does not return in a great number if not in the majority of such cases. And thus, by deducting these five cases, the seventeen cases of epilepsy "cured under treatment" become reduced to *twelve*. Nor is Case 20 altogether satisfactory. This is that of a lady, æt. 51, who had *one* attack four or five months after the termination of the menstrual epoch, for who shall say that this convulsion was epilepsy in the ordinary sense of the word, or that the non-recurrence of the attack may not have been due as much to the system having adapted itself to the new state of things as to the medicine. Nay, exception may be even taken to Case 6, for the patient here was in her sixty-third year at the time of the first attack, her conformation was apoplectic, and the attacks themselves were evidently more of an apoplectic than of an epileptiform character. In this case, however, these attacks recurred at frequent intervals for the next ten years, during which time she did not take the zinc; and they did not recur, except in three instances, in two of which they were very slight, after taking the zinc. It is a case, indeed, in which the influence of the treatment would seem to have been very beneficial; but it can scarcely be considered as a case of ordinary epilepsy; and thus, taking these two cases as doubtful, the twelve to which the seventeen had become reduced dwindle down to *ten*—namely, Cases 7, 9, 10, 11, 12, 13, 16, 17, 18, 19. Now, in order to be able to form an opinion respecting these ten cases, and be quite satisfied that the cure was really caused by the zinc, it will be well to state what were their essential particulars.

Case 7.—A girl, æt. 8. Four years ago she became giddy and fell, but without losing her consciousness or being convulsed. After this, such attacks occurred several times a day, with the exception of certain intervals, when they appeared to be arrested by the use of nitrate of steel. Two months before her visit to M. Herpin, she had an attack of an epileptic character, and in the week immediately preceding she had three such attacks. The oxide of zinc was given for a month, and thirteen years afterwards the report is that she had had no other attack.

Case 9.—A lady, æt. 34, who had suffered from frequent attacks of vertigo during four years. For these she took the zinc. Seven years later, after having had none of her former attacks in the interval, the giddiness returned, and at last, after several partial seizures, she had a complete epileptic fit. *On this occasion powdered valerian was the remedy used.* Nine years later there had been no recurrence of the fits.

Case 10.—A lady, æt. 31, who had suffered for ten years from occasional attacks of vertigo and petit mâl. A week after commencing the treatment, these attacks had diminished; a few days later they had disappeared; ten years afterwards, or thereabouts, they had not returned.

Case 11.—A girl, æt. 18, suffering occasionally from partial cramp in one of the hands, with a feeling like aura extending up the arm, and once or twice from an attack which seemed to be epileptic. These symptoms had been present for three or four weeks. The day after beginning the treatment she had a regular attack of epilepsy; at the end of two months, and likewise at

the end of five months, she had several threatenings. Six years later she continued perfectly well in the interval.

Case 12.—A boy, æt. 12, who had had convulsions when at the breast. Within the three months preceding the adoption of the treatment by zinc, he had had three attacks of epilepsy. Six years afterwards he had another attack, the first since the time when he had taken the zinc. For this he was again put under the same treatment, and five years later M. Herpin reports the continued absence of fits.

Case 13.—A boy, æt. 14½. The first attack, which was incomplete, was after having been startled by the explosion of a cannon; the second occurred a year later without any obvious cause, and the third at the end of six months after the second. At this time the zinc was prescribed. Two and a half years later the fourth attack occurred, when the zinc was resumed. Six months afterwards he had an equivocal attack of giddiness. Six years later there had been no return of either giddiness or fits.

Case 16.—An intemperate man, æt. 21, who within a month had had two attacks of epilepsy, five partial attacks, and much giddiness. Abstinence from wine and valerian was the treatment carried out for thirty-seven days, and after this the zinc was given for nine months. During the first thirty-seven days he had five partial attacks and a good deal of giddiness; during the treatment by zinc his only annoyance was an occasional feeling of giddiness. Thirty months after this time he had a partial attack and a return of the giddiness; and two months later a complete attack and three partial attacks. At this time the zinc was resumed. Two days later he had three complete and three incomplete attacks, *when the zinc was abandoned, and the ammonio-sulphate of copper given in its place*: Six and a half months afterwards, feeling some giddiness, the first symptom of the kind since the last report, he was put under a course of *zinc and extract of valerian*, in equal quantities, for seventy days; and three years later there had been no symptom of relapse.

Case 17.—Another intemperate man, æt. 28, who had had three epileptic attacks within the previous four days. For these symptoms the treatment by oxide of zinc was adopted. A fortnight afterwards he had again four attacks within four days, and a month later one of a much milder character; at this time *the zinc was changed for the ammonio-sulphate of copper*. Three years later, after an interval of complete freedom since the last report, he had four attacks within four days, when *the treatment by copper was resumed*. A year later there had been no return.

Case 18.—A girl, æt. 13½, suffering apparently from tubercle of the brain, and dying six months afterwards from general tuberculization. Every week, for six weeks before M. Herpin took charge of the case, there had been a partial attack of epilepsy, preceded by aura. After taking the zinc there was only one such attack, with a little giddiness.

Case 19.—A child, æt. 9, who had had a partial attack of convulsion, without falling or losing his consciousness. The treatment by zinc was at once adopted. A month later, there having been nine such attacks in the interval, *the zinc was changed for valerian*. Eleven days later there had been six attacks, when the valerian was laid aside and *the zinc resumed*. Forty-two days later, there having been eight attacks in the interval, *the zinc was changed for the selinum palustre*. Thirty-eight days afterwards there had been only two attacks; then, after a complete interval of five years, there were two or three of the old attacks on two successive days, and after them a regular epileptic seizure. At this time the zinc was the treatment adopted; and eleven months afterwards there had been no regular seizure, and only occasional threatenings, with a few partial attacks during the earlier weeks of the treatment.

Now, on looking over these cases, it is not a little difficult to feel thoroughly satisfied as to the perfect efficacy of the oxide of zinc as a remedy for ordinary unmistakeable epilepsy. It is difficult to do this, because the cases themselves are not sufficiently marked, or in other words, the habit of convulsion is not sufficiently confirmed, to allow us to say what would be their natural course. For, assuredly, he must know little of this class of cases, who does not know that very suspicious convulsion-symptoms may recur repeatedly, and subside suddenly or gradually; or that epilepsy itself may recur more than once and yet not become a habit. Even M. Herpin himself relates two cases of epilepsy coming to an end without any special treatment; and, on the other hand, he gives us the history of nine others, where the malady was really confirmed, and where, according to his own admission, the oxide of zinc was perfectly ineffectual. Nor must it be forgotten that on more than one occasion the symptoms subsided as suddenly, or almost as suddenly, under the use of valerian or selinum palustre—under the use of remedies, that is to say, which can scarcely be supposed to have any very wonderful virtues.

It would appear, moreover, that M. Herpin himself has become less confident as to the efficacy of oxide of zinc than he was in 1852, when he wrote the work from which the previous information has been taken. Thus, a more recent statement is—"Que l'oxyde de zinc, ne cessant point d'être convenable pour les enfans et les viellards, échoue très souvent chez les adults." M. Delasiauve, who quotes these words * tells us that the principal reason for this change of opinion was the absolute failure of an experiment in the Bicêtre, in which one of the physicians of that establishment, M. Moreau, treated eleven adult epileptics in every particular after M. Herpin's method. M. Delasiauve also tells us that M. Herpin now gives the preference to the ammonio-sulphate of copper in the treatment of adults.

Nor am I able to obtain any more satisfactory evidence in other quarters. As for myself, I may say roundly that I saw no evidence of any good results from the use of zinc in nine cases in which the metal was given after M. Herpin's plan; and that I am confirmed in this opinion, so far as epilepsy is concerned, by the result of a much more extended trial at the Westminster Hospital, by my friend and colleague, Dr. Marcet.

Art. 35.—*Lactate of zinc in Epilepsy.* By Dr. Herpin.

(*L'Union Médicale*, No. 121, 1857.)

Dr. Herpin, it appears, is now disposed to prefer the lactate to the oxide for this malady, and he relates some cases in illustration of the good effects of the new remedy. As yet, however, the evidence is on a much smaller scale, and not a whit more conclusive than that which has been analysed in the last article.

* 'Traité de l'Epilepsie,' 8vo, Paris, 1854.

Art. 36.—*On the use of phosphate of zinc in Epilepsy.* By Dr. Barnes, Physician to the Dreadnought Hospital.

(*Lancet*, Jan. 30, 1858.)

During the last two years Dr. Barnes has used this remedy in several cases of epilepsy, and as he thinks with success. He is disposed to think that there may be an undue waste of brain-matter in epilepsy which may call for the use of phosphorus, and that the phosphate of zinc may therefore be beneficial in a double sense. He prescribes dilute phosphoric acid as the proper solvent, and adds tincture of calumba or gentian, or iron or quinine, according to circumstances.

Art. 37.—*A case of Epilepsy in which Tracheotomy was adopted.* By Dr. Ogle, Assist.-Physician to St. George's Hospital.

(*Lancet*, Jan. 2, 9, and 16, and May 1 and 8, 1858.)

This case is related at great length. It had been under Dr. Ogle's care nearly twelve months before the operation was performed, and during this time ordinary measures had been employed with little benefit. The operation was performed by Mr. Holmes. Dr. Ogle thinks that the benefit was well marked and quickly marked; but we question whether all will be disposed to agree with him in this opinion.

Case.—"Charles E—, æt. 16, of good bodily conformation, with head of proper size and shape, and with light coloured hair and light eyes, came under my care July 3d, 1855. He was an only child of a widow.

"*Previous history.*—The patient had been subject to 'fits' for the past five years, which were caused, it was thought, by a fright, the house in which he lived being supposed to be on fire. He was never known to have had a blow on the head or elsewhere, and was not known to have had '*worms.*' It was also said that he had never been subject to vomiting, or to cough, or to hæmoptysis, but at times he had been much subject to pain in the head, chiefly the vertex. He had never lost power in his limbs. The bowels were said to be generally relaxed. The mother strongly denied that her boy had been addicted to any sensual habits of a particular kind. He had had the fits once or twice a week for some time, when he was taken to one of the London hospitals, where he fretted greatly on account of his separation from his mother, and was treated with blisters on the forehead, and, according to his mother's statement, was strapped down, owing to frequent delirium. Since he came out of the hospital he had had the 'fits' every night. His memory had been getting worse, and very often, his mother says, he had lost his mind, and would laugh foolishly when addressed, but not answer.

"*Nature of the 'fits,' according to the account of friends.*—They came on at first once in three months, and just before their occurrence the boy was wont to run out of the house, knowing that they were coming on, and saying that 'the house was on fire.' After the fits he generally sleeps, and often has pain in the head. Sometimes, but not always, during the fits he foams at the mouth, and sometimes bites the tongue, and often voids the urine, but not the fæces. He always goes 'black in the face' during the most severe attacks,

and is much convulsed, to use his mother's expression, 'going in all manner of forms.' He does not scream in the fits, but 'seems as if he would scream if he could.' He always has a fit directly he goes to sleep, either by day or by night. The attacks last from one or two minutes to a quarter of an hour, the smaller ones being unaccompanied by blackness of the face or much struggling, being apparently strictly the 'petit mal.'

"*Present symptoms* (*at time of the above date*).—The patient was in a very weakened state. The pulse was below the ordinary number per minute, and feeble. He was very obtuse in mind, playing with his hands and trousers unmeaningly. The muscles of the eyeballs and face were natural in action, and there was no altered sensibility of the skin in any part of the body, and, beyond general debility, the muscles of the extremities were unaffected. The pupils were much dilated, and acted but sluggishly. The various thoracic organs were natural. The bowels were relaxed, and the patient complained much of frequent thirst. The tongue was rather furred."

Between this time and the 17th of May in the following year, when the operation was performed (it is unnecessary to follow Dr. Ogle in the copious details which he gives), ordinary measures were tried with little benefit. Of the operation and the after-period the account is as follows:

May 17th, 1856.—"The boy's face was very pale. He would scarcely answer any questions, but would smile idiotically at times; he walked very feebly, but not with any less power on the one side than the other; he had had a very bad night, and no sleep until 12 o'clock, and then as soon as he fell asleep he went off into a fit, which continued about a quarter of an hour; and between 12 and 2 o'clock he had four bad fits. He afterwards had other attacks when his mother was asleep, and again more between 6 and 7 o'clock a.m.; and has had another to-day since 10 a.m., but without any biting of the tongue, lips, or thumbs. He seemed revived by wine given to him. The bowels were open yesterday, but no worms were seen; the pulse was very weak; the pupils of the eyes were natural; the appetite was pretty good.—3 p.m. The patient has had two more 'strong black fits.' He underwent the operation of tracheotomy at 3 p.m. He was long in getting under the effect of chloroform. The eyeballs were drawn down, &c., as before. There was a spasmodic attack of the face and right side of the body, and several times rigidity of the limbs, so that the patient several times slipped down in the chair. After the operation, the pupils became contracted. No lividity or sickness, or priapism, or voiding of the urine was noticed. On his recovering at one time there was great pallor, and the pulse was almost gone during a little choking which came on, but the pulse again rallied, and remained very good, and the pupils natural. He was quite sensible, and smiled once or twice. Whilst he was breathing through the tube, *the working of the alæ nasi went on just as if air passed freely* through the nostrils. I sat with him until half-past 5 p.m., and during this time there was occasional violent expirations and attempts to cough, and a quantity of bloody mucus was shot out of the tube, but generally drawn in again. No hæmorrhage came on.—8 p.m. Much the same. He has had four fits, the first one with slight lividity (as observed by the nurse), but not nearly so bad as most previous ones. Mr. Wilbe, the resident dispensary officer, saw him in one, but although severe, he said there was no lividity, no foaming, and no biting of the tongue or lips, &c. The patient took a little beef tea, and swallowed as well as usual. There was no hæmorrhage. He had been crying once or twice, and again did so whilst Mr. Holmes, Mr. Wilbe, and myself were present, at the thought of

his mother being away at night. We left him seeming to be on the whole very comfortable.

"18th.—Quarter to eight a.m.: Found that he had had a very bad night, and the nurse stated that he had had twenty-five fits between the hours of two and eight o'clock this morning. These were very bad, but were not attended by any blackness of the face. The face was very red in colour, and the upper part of the left eyeball quite blood-red. At one time, the patient appeared violent, and wanted to bite things. The last fit was twenty minutes before my visit. The pulse was 85, and he had taken beef-tea. The skin was warm, but the feet rather cold. The tongue was furred. No thirst was complained of, but the boy cried much. The respiration was noticed to be rather difficult, and as the inner of the tracheal tubes could not be removed, owing to coagulum, &c., both of the tubes were taken out, and much bloody mucus and coagulum found within. There was well-marked emphysema of the neck on both sides.—Half-past nine p.m.: The boy seems tranquil and easy. Pulse natural, and no thirst. Tongue very furred, and bowels not open. The face was natural, and at times smiling. The feet were warmer. The respiration was the same as my own in number. He had had milk and eggs and bread and butter. When lying on the left side, he s emed inclined to cough, but not on the other, according to his mother's statement. The string of the tracheal tube had been tightened as the neck had shrunk. Since the morning, he had had four fits, the first being the worst, *but in no case was any blackness observed*, although the face got very red. Much clotted mucus came out of the tube.

"19th.—Reported to have had five or six hours of comfortable sleep, and this morning had been removed down into his former room, which was a cellar (much to my annoyance.) Had only had three fits in the night, which were very mild, excepting the first one, when the conjunctiva at the upper part of the left eye was very blood-shot. The nurse said that the 'mouth had not been put out of shape.' Slight bronchial mucous râles were observed in the fore part of the chest by auscultation, but no pain or thirst was complained of. The tube had been frequently removed from the trachea in the night to be cleaned. The pulse was 85, and rather sharp. The bowels not open. Ordered a draught with rhubarb and magnesia. The milk, eggs, and bread and butter to be continued.—Half-past eight p.m.: Rather fretful, as he has been every day towards evening, according to the nurse. Pulse quiet. Breathing a little troubled, but eased on removing and cleaning the tube, which contained some thick mucus, though it had been cleaned one hour before. Tongue furred. Smiles and tries to speak when told. Thumb-nail very sore from biting. Wound suppurating healthily. Since morning, he has had *three fits*, of which the first was the worst, and the face became dark red, but by no means black; the others were very mild. The mother repeats that after the fit the breathing was very violent, both inspiration and expiration; but whilst *in* the fit, he could not breathe generally. To go on with eggs and milk and beef-tea, &c.

"20th.—Quarter to twelve a.m.: Has had six hours' good sleep, but had *five* fits in the night, but in none was he more than very red in the face. As before, the right side was chiefly affected. Has also had *two* fits this morning, but they were very slight indeed, simply transient redness of the face. Pulse 80, weak. Rather depressed countenance. Tongue, as before, rather furred. Bowels not open with draught yesterday. Wound suppurating; redness around not so great. Rather thirsty. To go on with eggs, milk, beef-tea, and one ounce of wine diluted; raspberry vinegar. An ounce and a half of compound senna draught immediately.—Half-past nine p.m.:

Seems quite tranquil. Pulse 85, with tolerable firmness and fulness. Tongue cleaner. Bowels open three times; motions rather offensive and watery; the first motion, two hours after the draught; had slight abdominal pain at the time. Skin warmer. Not very thirsty. Liked the raspberry vinegar much. Had the nourishment and wine diluted at intervals. The nurse says he is more refreshed and better with the wine. Breathing comfortable. Feet warm. Had *no* fits since morning.

"21st.—Ten a.m.: Had *eight or nine fits* in the night whilst asleep, two or three being rather severe, and *three* this morning, which were very slight; was *not* dark in the face in any, and there were no contortions of the face, the right side of the body being chiefly affected. The nurse and mother both consider the fits since the operation to differ from those before it, *by the want of any noise at the throat both before and in the fit, the want of contortion, the want of any lividity of the face, or of any very deep redness of the eyeball,* which often were like balls of blood, as they describe it, *and by the rapid convalescence after the attack.* The patient is reported as being stronger this morning. Pulse not so strong as last evening. He was restless in the night, and had about three hours' sleep; somewhat thirsty; tongue rather furred, but not much; has slight cough at times, and then 'gets up thick mucus.' Has had an ounce of wine along with other things in the night.—Ten p.m.: Has been much more cheerful all day. Pulse natural, 85; tongue clean; skin warm; appetite good, and had an ounce and a half of wine and part of mutton chop, with eggs and milk; something every half hour. Nurse says the tube requires more frequent cleaning; the mucus is more tenacious. Had only one very slight fit since morning, in which no lividity or contortion of the face existed; only the limbs were affected, and he was out of the fit almost directly. Seen by Mr. Holmes in the attack. Not very thirsty; bowels not open since last night.

"22d.—Half-past 11 a.m.: Had a very bad night, and ten or twelve fits; some very strong; in one he forced the tube out about 12 o'clock, and Mr. Wilbe had to be sent for to return it. He has had also three this morning, and I found him just recovering from one; the face was entirely suffused, but nothing more. He seemed very heavy and stupid afterwards, and inclined to sleep. Pulse natural; bowels not opened, and had taken an ounce and a half of compound senna mixture; had had wine, &c., in the night. In no case was there lividity of the face. The mother and the nurse feel assured that the boy did not pull the tube out in any way, but that it was forced out during the convulsive efforts.—Half-past 9 p.m.: Had two slight fits only since visit, and has taken wine, two ounces of mutton, two eggs, milk, and beef-tea. Bowels open twice; tongue clean; pulse quiet, soft; much thick mucus passed during the day. Can speak in a low tone, which he says he could not at first do at all. Smiles, and is cheerful. Face with a healthy florid look, and natural and lively expression. Protrudes tongue promptly.

"23d.—Half-past 10 a.m.: Had not so good a night, and had ten or twelve fits; none with lividity or alteration of the facial muscles. Bowels not again open; tolerably cheerful. Repeat the senna mixture, wine, &c.

"24th.—12 a.m.: Had the best night which he has had since the operation, having had only *five* fits, and these not very severe; but he had one lately, and is now very inactive and heavy, and will hardly put out the tongue. (*Has never bitten his tongue or lips since the operation.*) Lies half asleep, with the right eyeball rather everted; face slightly suffused. After about five or eight minutes, during my visit, he gradually recovered. He had been very excited two hours before, requiring great force to hold him down, owing to the pain and difficulty attending the nurse's attempt to get the tube out, which she

had not done since yesterday early. She had only cleaned it out by means of the probe, &c. Whilst present I saw him in a fit: it began by his raising himself up in bed; he quickly became quite bright red over all his face, but was not the least black; he stared violently, with very dilated pupils, but did not seem to know any one; the pulse was very quick; breathing still going on. After about four minutes the attack gradually subsided, and he lay rather heavy, and yawned; the pulse became natural, and he had some wine and water. The cleft of the operation is so deep and so closing, that the inner tube can apparently not be got out. Mr. Holmes wishes it to be left in, and to be cleansed by the probe, &c.—9 p.m.: Very cheerful, and sits up in bed; wound suppurating; tube very clogged up; speaks freely, but not nearly so well when the tube is somewhat cleansed; pulse and skin natural; had meat twice, with wine and other things; bowels open once freely with senna draught to-day; the draught yesterday had no effect. *Several thread-worms were seen to-day.* I had ordered a tubal dilator at Savigny's—one which I had had constructed, and wished to have tried, but it had not yet come. A much longer tube was required than the one used, as alluded to in Mr. Holmes' note, to prevent the fluids from the outer wound getting down into the tube, in order that the inner one may freely be removed. Thinking that the tube might be cleansed by forced expiration, the mouth and nostrils being stopped, I wished the patient to adopt this method, but for some reason or other he was unable.

"25th.—10 a.m.: Appears very cheerful; had only *three* light fits in the night when asleep, and again three of a similar description this morning. The mother declares he was not unconscious in any of them, and that in coming out of them he says 'Oh, dear!' He has slept five or six hours in the night, and again an hour and a half this morning; bowels open twice this morning. To go on with wine and other things.

"26th.—Half-past 10 a.m.: Sitting up; he seems very comfortable; has only had *two* fits in the night, and they were small. Nurse says he was not unconscious in any of them. The tracheal tube was quite patent, as shown by the probe passed down, also by fine air coming out of it, and mucus likewise on his coughing, but *yet he can speak in a half whisper.* Cough rather troublesome.—8 p.m.: The boy walked to my house, a distance of three-quarters of a mile, which he ought not to have done. He said he felt poorly, and seemed weak; had only one slight fit since the morning.

"27th.—Has had rather a bad night, with eight or ten fits, but none very strong; several to-day, but his mother declares that he is out of them directly (in a minute). The tube very full of mucus, but the air passes through; cough bad; bowels not open; tongue clean. Senna draught, with tincture of senna. To be repeated if necessary.

"28th.—4 p.m.: Had eight or nine fits in the night, and several to-day, but out of them in a minute. The tube was taken out by Mr. Holmes, and nothing left in the aperture, until a longer tube, to lie with its shield on the skin, be made by his directions. Never passes urine in his fits since the operation; bowels opened twice with a second draught; appetite indifferent to-day; cough not quite so troublesome all day as it was in the night.

"29th.—12, mid-day: Had two or three small fits in the course of yesterday afternoon, and eight or nine in the night of the same character; seems stronger, and is going out to see the people 'come up for the illumination.' Mr. Blaise is making a single large tube, to be ready in the morning.

"30th.—Half-past 9 a.m.: Nurse says he had only *two* fits since I saw him yesterday, and they were slight ones. The large tube was brought and introduced into the tracheal opening by Mr. Holmes.

"31st.—Did not see him for above a week from this date, as I was out of London; but the following list of fits which the boy had was kept by the mother by my directions. The fits were all of the 'slight kind:'

"June 2d.—In the day, two fits; in the night, three fits.

"3d.—In the day, one fit; in the night, four fits.

"4th.—In the day, three fits; in the night, five fits.

"5th.—In the day one fit; in the night four fits.

"6th.—In the day, one fit; in the night, six fits.

"7th.—In the morning, two fits; in the night, eight fits.

"8th.—None in the day; in the night, three fits.

"9th.—In the night, four fits; in the day, six fits.

"10th.—In the night no fit; but this morning had one of the slight form. Recommended the occupation of netting to him. Going on with large doses of quinine and iron, purgatives, and at times turpentine injections, as plenty of worms were passed.

"12th.—Two capital nights, and no fits since Tuesday morning.

"13th.—The tube was removed, but could not be returned (though it had only been out for half a minute) without chloroform. During the administration of chloroform the boy had a slight attack of convulsions (doubtful whether from chloroform or not).

"14th.—The tube was replaced with the greatest ease. No fits since Tuesday, 10th. Fit in the course of the day.

"15th.—One fit.

"16th.—Two fits.

"17th.—One fit. Worms seen. Ordered turpentine enema.

"18th.—No fit.

"19th.—One fit. Worms came away in a lump. Repeat enema.

"20th.—One fit.

"21st.—No fit. No worms seen. Sleeps at night, and never wakes. The mother says 'she does not know what to make of herself when she gets up in a morning, now that she gets so much sleep; she is so delighted.'

"22d and 23d.—No fits.

"All the above fits were very slight, as the mother says he 'only goes white for a moment, and is then all right.' Nothing more decided than this. His mother calls the attacks 'faintnesses,' which last generally about two minutes, during which he says 'mother,' and heaves a sigh, but does not lose consciousness, and then says 'I'm better.' If he be on the other side of the room when the fit comes on, he is generally about right by the time his mother gets to him. The fainting attacks are generally in the morning when he gets up; *never* at night. The boy says he always feels better when 'wind and air and heat' is coming to him. Pulse better; no cough; tube in trachea all right; no worms seen in the evacuations.

"24th.—One fit. Repeat mixture and tupentine enema.

"25th.—No fit.

"26th.—No fit. Repeat mixture.

"27th.—One fit and two faints directly after 'turning the mangle.' No worms with injection. Bowels not open; slept from half-past 10 to 8 without waking. His mother says 'she now lives another life.' Repeat mixture and powder.

"28th, 29th, and 30th.—No fits.

"July 1st.—No fit; no worms; 'feels he's getting much stronger.' *Always feels uncomfortable and sinking when the tube is out for cleaning.* Repeat mixture.

"4th.—One fit. Rode yesterday to Camden Town, and walked part of the way back. Had another injection.

"8th.—No fit.

"15th.—One fit; occasional worms. Got up this morning and went out without food, and 'fainted right off.' Pulse good; no wine and very little meat of late.

"16th.—One fit.

"17th.—One fit. Repeat injection and mixture.

"The above fits are only faintings, and he is quite out of them again in about five minutes. His mother says he does not lose his senses completely in them, and only sometimes knows of it beforehand. It would appear as if they were from not eating sufficient, as he scarcely touches anything to eat in the morning, and never has the fits in the other part of the day, when he eats more. Tongue clean; no worms; motions sometimes light, sometimes black.

"24th.—Offensive motions brought away with injection, but no worms. Repeat mixture.

"25th.—On walking quickly for a time, fainting came on.

"26th.—Pulse 29. Fainting again this morning.

"Arrangements were made for the boy's going to Brighton Infirmary—the tube being still in the trachea—for general health.

"29th.—Went to Brighton with his mother, and on the 30th into the infirmary. During his stay his mother visited him, and he sent home letters, two of which I have, dated August 1st and 5th, both speaking of his being comfortable, and getting well, &c. On the week following his admission into the infirmary, the mother went again to Brighton, saw him, and the tube in the trachea was then all right, and the boy much about the same, according to her account. Two weeks later the mother went down, and to her surprise found the wound healed (as I had told her it was still kept open), and the tube out. When she saw him he was then very ill, but better, she was told, than what he had been. He had several fits whilst his mother was with him, which was for four or five hours. These fits were very bad ones, the ears getting red and the face dark, and lasting about ten minutes; he also lost his senses during them. She understood from the patients that he had been delirious, and was strapped down two days and nights, and had had very severe fits. Previous to the removal of the tube, I had heard from Dr. Ormerod, under whose care in the infirmary the boy was, that he had 'five or six minor epileptic attacks every day.' Dr. Ormerod thought him worse than he was when he entered the infirmary. On hearing then that the tube had been removed, and that since then his mother had seen him in very bad attacks, I wrote to Dr. Ormerod, who very kindly sent me word again about him. He said that the tube was 'after a while evidently keeping up irritation, and a most striking improvement ensued on its withdrawal. Wishing to have the boy under my immediate notice, I sent the mother to Brighton to fetch him back, August 30th. It seems that on the day of return he had no fit; but on the evening of Sept. 1st he had a slight one, which lasted five minutes. His mother asserts that he did not completely lose his senses in it.

"On September 2d I gave him again quinine and sulphate of iron. The voice was quite natural, and the wound in the neck firmly healed. The pulse was good, the tongue clean, but the appetite was still very bad in the morning. No worms were seen in his natural motions, but under further use of strong purgatives and enemata, they were passed. What the boy appeared to want, as no more very severe attacks came on, was regular employment. This, however, he could not get; for although one or two people took him as errand-boy, they were frightened by his slight attacks, and obliged to part

with him. After that I lost sight of him altogether for some time. At last I saw his mother, who said he had had on several occasions heavy attacks, *and wanted the operation to be again performed.* However, as by acknowledgment on the patient's part, and by his description, I felt sure the attacks were not nearly so severe as they had been before the operation, although the tube was kept in so short a time, I could not consent to it. Indeed, there was no laryngismus threatening life, limb, or mental powers, which demanded our having recourse to tracheotomy. For several months I had again seen nothing of the patient except on one occasion, when I accidentally met him in the street, carrying a basket of vegetables. He then said he at times had severe fits, but he was a marvellously different being from what he was during the few days before the operation. Again I lost sight of him for several months, until November 26th last, when, having been seen by Mr. Holmes, he was sent to me with his mother. He had grown much, but was very thin. He had had two or three situations, but had been unable to retain them, by reason of the fits, which now were nearly all of the smaller kind. They lasted about five minutes, during which time he went "as pale as a corpse," and lost his consciousness. One always came on in a morning. Contrary to what took place some time ago, the attacks but seldom came on in the night. His mother had not seen any worms of late, but thought, from his ravenous appetite, that he must have them. She volunteered observations as to the good of the operation, and was willing to have it again performed; but as there was no laryngismus in the attacks, and apparently scarcely any convulsive movements, such a step could not be advised. The epilepsy had almost entirely assumed the *syncopal* form."

Art. 38.—*A case in which death happened in an Epileptic Fit after Tracheotomy.* By Dr. Ormerod, Physician to the Brighton Hospital.

The following case is appended to the preceding case by Dr. Ogle. It was communicated by Dr. Ormerod to Dr. Ogle as an objection to the practice of tracheotomy in epilepsy.

Case.—"Henry B—, æt. 55, came under my care at the Brighton Dispensary, in January, 1852, with disease of the larynx. He was a tall man, of an extremely cachectic appearance, but he said that he had been quite healthy and well until two months before. Then came sore-throat, gradually increasing, with some hæmoptysis during the last three weeks. He spoke with great difficulty, but there was no notable obstruction in breathing or swallowing. There was nothing to be seen on examination of the fauces, but the attempt to examine them caused distressing retching. There was no dulness on percussion between the clavicles; auscultation elicited no reliable results.

"For a month he steadily improved under the use of blisters, spermaceti mixture, cod-liver oil, and tonics. Then his breathing became more difficult, and he had a severe settled pain in the throat, for which Mr. Fuller, the house-surgeon, applied a twenty-grain solution of nitrate of silver to the epiglottis, with decided relief. The dyspnœa, however, consequent on the operation was so severe that I did not dare to repeat the operation.

"He now became rapidly worse; his respiration grew more difficult, the breath having a horrible fœtor. Still he was able to swallow without diffi-

culty. Blistering failed to give him any more relief, and it was deemed necessary, on account of his urgent dyspnœa, to open the windpipe.

"Mr. Fuller accordingly made an opening through the cricothyroid membrane with great and immediate relief, at 8 p.m., on March 1st. At 10 p.m., while I was with him, the tube being clear, but having shifted a little from the mesial line, he had a slight epileptic fit. He speedily recovered, and at midnight was lying asleep, breathing easily through the canula. At half-past 2 a.m. he had another epileptic attack, in which he died. I heard afterwards, that about a month before his death, he had a slight fit of an uncertain nature.

"On post-mortem examination of the body, we found a ragged pouch containing a fetid putrilage, opening above on the right side of the rima glottidis, communicating below by sinuses with an ossified and partly necrosed cricoid cartilage. The chordæ vocales were œdematous. The opening had been made clear from the seat of disease."

Art. 39.—*On the treatment of Chorea.* By M. Trousseau.

(*Gazette des Hôpitaux*, No. 11, 1853.)

Although it is true that chorea left to itself may at last become cured, yet the intervention of medicine is of avail in preventing serious phenomena, moderating accidents, and abridging the duration of the disease. Among the means employed in its treatment cold baths are efficacious, acting probably in part as sedatives, and in part as tonics, as also, as when used in the form of sudden immersion, by the shock they induce. At all events they constitute an inoffensive means, which, in combination with other treatment, may do good service. M. Trousseau cannot understand why the sulphurous baths should meet with such favour at the Hôpital des Enfans. The gymnastic treatment has also been much followed there, but this can only be regarded as an accessory means, useful towards the decline of the disease. Moreover, the means of putting it into force are not readily met with, and M. Trousseau has found a very useful substance in the employment of a metronome, the number of the oscillations of which can be regulated, each being indicated by a clicking sound. If one of these be placed before the patient, the sight and sound of the oscillations become of great utility in assisting him in regulating the movements of the whole or a part of the body. It is, however, only an adjuvatory means, and is more useful in the case of tic, the patient being directed to produce his tic voluntarily at the same time the click of the instrument is heard. He becomes fatigued by this voluntary effort, and the tic is speedily modified, though rarely cured. M. Trousseau has, since 1841, been in the habit of treating chorea methodically by the syrup of sulphate of strychnia, which is preferable to nux vomica itself. He dissolves five centigrammes of the sulphate in 100 grammes of simple syrup, *i. e.* about twenty-five teaspoonfuls, so that each teaspoonful contains two milligrammes, *i. e.* one thirty-fifth of a grain of the sulphate. At first a teaspoonful is given daily between breakfast and dinner, and if no effects are produced in two or three days it is given in the morning fasting, and at bedtime. The dose is, after awhile, increased to two teaspoonfuls, to three, or even to four, con-

tinuing it until stiffness of the neck and jaw and slight convulsive movements of the limbs are produced. The choreic movements now rapidly diminish, and sometimes after fifteen or twenty days of treatment the disease seems cured. Prudence must be observed in gradually increasing the dose, but with this accidents are not to be feared. The convulsions that are produced must not alarm us, as they are never dangerous if not carried too far. When the syrup has been taken for some days, stiffness of the jaws, headache, disturbed vision, vertigo, and itching of the scalp come on. The observation of this last sign, which the patients compare to pricking with small needles, is the safety-valve in the use of the medicine, as it is one of the earliest signs of its operation. When the children are standing they are seized sometimes with sudden sharp cramps, which oblige them to catch hold of any object. They should then be laid down. It is impossible beforehand to state the dose of strychnia that may be required; for very different effects are produced even by the same dose in the same child. With this means others may be used, accordingly as the patient is plethoric, chlorotic, or hysterical.

ART. 40.—*Results of Tracheotomy in Croup at the Children's Hospital, Paris, during* 1856. By M. ANDRÉ.

(*Bull. de Thérap.*, May 30, 1857; and *American Quarterly Journal of Med. Science*, Jan., 1858.)

The following interesting table is taken from the thesis of M. André:

AGE.	No. of Patients.	Deaths.		Recoveries.	
		Boys.	Girls.	Boys.	Girls.
From 15 months to 2 years .	6	2	4	...	...
„ 2 years to 3 years .	9	4	3	2	...
„ 3 „ 4 „ .	13	5	4	4	..
„ 4 „ 5 „ .	11	6	3	1	1
„ 5 „ 6 „ .	6	3	1	1	1
„ 6 „ 6½ „ .	3	1	1	...	1
„ 7 years . . .	2	...	1	...	1
„ 8 „ . . .	2	...	1	1	...
„ 9 „ . . .	1	...	...	1	...
„ 9½ „ . . .	1	...	...	...	1

From this table it appears that many successful cases of tracheotomy have been observed, as nearly one third of the patients recovered. The most notable success has been obtained with children from nine to nine years and a half old, and then with those children who were from five to six years old. The least satisfactory results were observed from fifteen months to two years, for here we have six operations and six deaths. All the children under two years are to be found in the

column of deaths; and all those who died, except two, were just a little more than two years old. M. André thinks that these facts may be explained by the greater amount of resistance with the older children, both as regards the disease and the operation. He also conceives that debilitating means, as leeches, blisters, &c., should be sparingly used, so as to husband the strength for tracheotomy.

Art. 41.—*Cold applications in Pneumonia and Pleuritis.* By Dr. Niémyer.

(*Prager Vierteljahrsch.*; and *Dublin Hospital Gazette*, Jan. 1, 1857.)

Professor Niémyer, in his clinical communications, recommends cold to be applied externally in the treatment of pneumonia and pleuritis. The results of extensive experience in the Hospital of Magdeburg have confirmed him in the belief that cold applications are not merely devoid of danger, but that they are as efficacious as in inflammations of external parts. The cold produces marked amelioration, and the patients—even children—urgently request that the application be renewed as soon as it has become warm.

Professor Niémyer does not attribute to cold applications the power of cutting short the above-named diseases; but he believes that the exudation process ceases at an earlier period; that the fever is sooner brought to a close; and the patients are thus frequently enabled to return to their occupations seven or eight days before they could do so under other treatment. Neither metastasis nor catching cold have been noticed as a consequence. In late stages of pneumonia and pleuritis (acting on the fact established by the best pathologists, that there is diminution of the blood-corpuscles, especially in old persons), he administers feruginous remedies with great advantage.

Art. 42.—*Asthenic Pneumonia and its treatment by Quinine.* By Dr. Corrigan.

(*Dublin Hospital Gazette*, Dec. 15, 1857.)

In a clinical lecture recently delivered, Dr. Corrigan says—

"I cannot allow this lecture to terminate without bringing under your notice a form of pneumonia and of pleuripneumony that is now, I may say, epidemic among us—asthenic pneumonia. It attacks all ages. It proves fatal either directly in the first stage of congestion—in which it is, indeed, a very fatal disease, the patient dying while the lung is gorged and dark, from which, on a former occasion of noticing it, I called it blue pneumonia—or it passes from the first into the third stage, scarcely showing at all the second or hepatized stage. Instead of being seated, like ordinary pneumonia, in the lower lobe, it is more frequently found in the upper lobe. Its symptoms are as peculiar as its pathology.

"It is not accompanied with the peculiar calor mordax of skin which is so characteristic of inflammatory or sthenic pneumonia,

but, on the contrary, the skin is of its natural temperature, or cooler than natural, and the face rather sallow than otherwise.

"Pain is variable, and appears to depend altogether on the degree of inflammation of the pleura; most generally, however, it is not much complained of, the patient describing shortness of breath as his prominent symptom.

"One of the most remarkable features connected with it is, the absence, for several days, of any expectoration, and even when this does appear, its being very small in amount, compared with the extent of local disease, as revealed by percussion and auscultation.

"Bronchial respiration, and very fine crepitating rattle, are the auscultatory signs developed in the disease.

"I have again, as two years ago, to recommend strongly its main treatment by quinine. The general dose which you see administered for an adult is five grains every third hour; and under its exhibition the pulse becomes slow and steady, the respiration free, and rapidly so. If the patient be young, with evidence of capillary congestion generally over the system, the exhibition is preceded by local depletion; but this is rather the exception. The patient, in this treacherous disease, often does not seek admission into hospital, nor advice in private practice, until too late, deceived by the absence of pain, of fever, and of expectoration, and feeling merely debility and shortness of breathing. In the instance which has furnished us an opportunity of examining the disease, the man died within six hours of admission into hospital.

"The whole upper lobe of left lung, you observe, is greyish or pale-coloured, quite destitute of air or elasticity, solid like liver to the feel, but at the same time soft and brittle under the finger, with scarcely any evidence of pleuritic inflammation, while the lower lobe remains healthy."

ART. 43.—*On the arrest of Pulmonary Tuberculosis.* By Dr. FLINT.

(*American Journal of Medical Science*, Jan., 1858.)

In this paper Dr. Flint furnishes the details of 24 examples of arrest of phthisis that have occurred in his own practice, and then makes some interesting observations upon the circumstances which seem to favour such arrest. The number might have been much increased had he not excluded such cases as were too recent, or the subsequent histories of which had not been sufficiently followed up, and those in which the disease was not arrested but simply slow in its progress. The evidence of arrest was decided from the fact of well-marked symptoms progressively abating in intensity, the patient increasing in weight and strength. "Until within late years, instances of supposed recovery from phthisis were unreliable in consequence of the want of certainty in the means of determining the presence of the disease. This uncertainty has been removed by the discovery and improvement of the physical exploration of the chest. Physical signs in conjunction with symptoms, render the diagnosis of pulmonary tuberculosis positive in the great majority of cases. I shall include

in this collection only cases in which the diagnosis rests on the conjoined evidence of signs and symptoms. With some exceptions, the results of exploration of the chest, together with the previous history and existing condition of the patient, were noted prior to the arrest of the disease. In a few instances, however, the cases came under observation subsequently to the arrest, and the diagnosis was made retrospectively; that is, the physical signs and previous history were deemed sufficient to render it positive that the patient had been affected with tuberculosis." In the narration of the author's cases a marked distinction is made between "arrest" and "recovery." Arrest, it is obvious, may take place without recovery, when the tuberculous affection ceases to be progressive, but the processes of restoration never being complete, recovery can only be said to have occurred when, in connection with restoration of the general health, the local symptoms have entirely disappeared. Of the 24 cases, in 13 arrest of the disease was followed by complete recovery, while in 11 arrest was alone demonstrated.

"In several of the cases the arrest of the disease was evidently due to an *intrinsic tendency* to that result; in other words, the disease ceased to be progressive, in consequence of its self-limitation. This is fairly to be inferred in those instances in which no appreciable external influences, in the form either of medication, diet, or regimen, were brought to bear in the course of the disease. Eight of the cases may be embraced in this category." The fact of such intrinsic tendency Dr. Flint believes is not sufficiently appreciated, having been, indeed, only of late recognised; and adds, that while it is probable that the arrest of tuberculosis, supposed to be brought about by the measures resorted to, is really in more or less of the cases actually due to the self-limitation of the disease; so is it supposed that this intrinsic tendency has been sometimes thwarted by injurious therapeutical or other means—especially when it was the custom to resort to the antiphlogistic course of treatment. In the cases here detailed no resort was had to antiphlogistic debilitating measures, such as depletion, mercurials, emetics, low diet, confinement, &c.; and it may be fairly asked whether an abstinence from such measures did not contribute to the favorable result.

The occurrence of hæmoptysis resulted in no less than 18 of the 24 cases. In 10 of the 18 it occurred more than once, and, in some, several times. The proportion exceeds that in which hæmorrhage may be expected to occur in phthisis, according to the researches of Louis (57 of 87 cases), proving that the symptom is not an unfavorable one as regards arrest; the fact according with the conclusion arrived at by Walshe, that the occurrence of hæmorrhage does not hasten the progress of the disease, but appears to produce an opposite effect. It also agrees with the inference from observations in individual cases in which hæmorrhage seems to take place in lieu of a fresh tuberculous exudation.

Comparing the 14 cases, in which measures of treatment were adopted, it is found that in nearly all a change was made in the habits of life, such change consisting in relinquishing, partially or entirely, sedentary pursuits, and giving proportionately more time to *exercise*

in the open air. In 5 of the cases this change in habits constituted the sole treatment, while all the 8 patients in whom the disease was arrested without any measures of management, were persons of active habits of life. We are, therefore, warranted in regarding out-door occupation as conducive to this result. "The exercise in the open air was not generally of the kind which often goes by that title, consisting in simple airings by gentle walks or drives; but it consisted in rough occupation, often involving considerable, and sometimes great exposure to vicissitudes of weather." *Change of climate* occurred only in two cases prior to evidence of arrest. "On this subject I have been led to conclusions to which others have also arrived, viz., that climate, in itself, exerts no special agency in determining an arrest, but that it may favour this result indirectly by affording better opportunity for exercise in the open air, and furnishing objects of interest to the mind which will secure that object. . . . . It has seemed to me far less important to fix upon a situation supposed to be the most favorable in its climatic aspects to the tuberculous patient, than to select a residence where the inducements to active habits of exercise are greatest. To place a patient in a group of invalids, in a particular spot, where he is expected to derive some specific remedial influence from the atmosphere, is rarely useful. The *ennui* incident to such a position, for a man of active habits of mind and body, is intolerable, and the moral effect of his associations is injurious. Patients will do wisely in avoiding the favorite places of resort for those affected with the disease, and in choosing points where the incitements to and the resources for physical exertion abound. Generally the objects of a change of climate are better secured by frequent change of place than by remaining stationary. Travelling in foreign countries, even when, so far as the climate is concerned, the change is for the worse rather than the better, may be in a high degree useful, because the exercise which it invites is not endured as a task, but accepted as a means of mental gratification."

With respect to *diet*, the object was not to lower the powers of the system, but on the contrary to support and develope them by nutritious food. The patients were encouraged to live generously, indulging and cultivating an appetite for any and all the varied wholesome articles of food, with a full proportion of meat. In consequence of carbonaceous alimentary principles appearing to be useful in the management of phthisis, and the alleged fact of the comparative freedom from the disease enjoyed by persons working in sugar-houses, Dr. Flint advises the free use of sugar. "It is a significant fact, apparent on referring to the cases I have reported, that appetite and digestion were, in general, not greatly impaired. It accords with the views just expressed to regard an unimpaired appetite and digestion as highly favorable for an arrest of the disease. Observation undoubtedly shows us instances in which the tuberculosis is progressive, notwithstanding the ingestion and apparent assimilation of nutritious food; but it probably can show few examples of arrest of the disease when, either from disinclination or injudicious management, the diet is insufficient for the full support of the body, or fails to be appropriated to that end. No part of the management of tuberculosis seems to me

of greater importance than that relating to the diet ; in fact, whatever efficiency belongs to active habits of exercise, it is reasonable to suppose, is in great measure exerted by means of the increased activity of the processes of assimilation thereby induced." Diffusible stimuli, as wine, beer, and spirits, entered more or less into the management of a considerable number of these cases. They were given in moderate quantities, subsidiary to alimentation, *i. e.* contributing to render the digestive processes more active and complete. "I have of late advised their use much more freely than formerly, and I think I cannot be mistaken in attributing to them much value. I have observed that patients affected with tuberculosis are often able to take spirits in large quantity without experiencing stimulant or intoxicating effects. The disease appears to be one of those in which these effects are with difficulty produced."

Beyond mere palliatives, little use was made of *medicinal agents*, properly so called. No remedies were given with reference to their special influence on the tuberculous cachexy, unless cod-liver oil can be so regarded. Tonics were often ordered, with the intention of influencing the processes of digestion and assimilation ; and in this point of view they must be regarded as important agents. Cod-liver oil does not hold a very conspicuous place in these cases. Several of them occurred before it came into vogue ; and in other cases it was taken for too short a period, either from the repugnance or the disturbance of the digestive organs it gave rise to. In very few instances was it persisted in. "Had a larger number of these cases occurred within a more recent period, or were I to report the cases during the last few years in which the progress of the tuberculosis appeared to be greatly retarded, although not arrested, this remedy would be found to enter more generally and often largely into the treatment. That it is a valuable remedy I can scarcely entertain a doubt ; but it is to be considered that, since it has become emphatically *the* remedy employed in this disease, improved pathological views and the lessons of experience have wrought a radical change in the management of the disease as regards other measures—a change consisting in the abandonment, to a great extent, of antiphlogistic and debilitating measures, and a recognition, more and more, of the importance of measures of an opposite character."

"A point pertaining to the *mental constitution* of persons affected with tuberculosis seems to me worthy of notice. As regards the successful management of the disease, much depends on the patient's energy and perseverance. Tuberculous patients, as is well known, usually entertain sanguine expectations of recovery ; but in a large proportion of cases they expect recovery to take place without any extraordinary agency on their part to secure that result. The disease, while it engenders hopes which are so often fallacious, seems frequently to impair that determination of purpose without which the means requisite to effect an arrest will not be efficiently pursued. A passive expectancy of recovery, and a calm acquiescence in the prospect of a fatal termination, belong to the natural history of the disease. On referring to the cases which I have reported, I find that, in general, the persons manifested greater resolution than is usually associated

with the tuberculous cachexy. This was due in some instances to innate strength of character, and in other instances to the force of circumstances."

"In conclusion, the general views which, with our present knowledge, are to govern the management of pulmonary tuberculosis, may be summed up in a few words. The ends to be attained are, the removal of the cachexy on which the progress of the disease depends, the consequent arrest of the disease, and the promotion of the processes of restoration. There is no special medication to be pursued for the attainment of these ends; they are to be attained by measures which, in general terms, develope and strengthen the power of the system. This mode of expression, it is true, in a scientific point of view, must be considered rather vague, but in a practical sense it has a meaning sufficiently definite. The measures are hygienic rather than medicinal; but much importance often belongs to the latter. The hygienic measures which are most important are laborious exercise in the open air, conjoined with agreeable mental occupation, and, as conducive thereto, frequently change of business, the selection of a more eligible climate, and travelling are desirable, if not necessary; generous diet, and in many, if not most instances, the free use of alcoholic stimulants. The medicinal remedies, in addition to those which are simply palliative, are chiefly those of the tonic class, and in this category may be included the analeptic, which has of late years had so much celebrity."

Art. 44.—*Treatment of Phthisis, &c. by "Special Exercises."* By Dr. Henry G. Davis.

(*American Medical Monthly*, March, 1858.)

Dr. Davis appears to agree with Dr. Edward Smith, in thinking that a lessened inspiratory action of the air-cells of the lungs has an important part to play in the production of phthisis, and that this lessened inspiratory action will be more effectually counteracted by certain special exercises of the chest than by the forced inspirations recommended by Dr. Smith. He says—

"In all the exercises which I recommend for the purpose of developing the chest and increasing the volume of lung, I make the hands the fixed point, moving the body towards them, or suspending a part or the whole of its weight by them. In this way more or less of the weight of the body is thrown upon the pectoral muscles, and as they arise from the sternum and ribs they act upon them in the same direction that they do in voluntary inspirations, without the fatigue that follows that effort. In this use of these muscles there is no necessity of fixing the parts from which they take their rise, as we do when we use them in direct action upon the arm; consequently the ribs and sternum are left free to be drawn by them, as illustrated by their use in asthma. Another consideration is, that involuntary respiration goes on without being disturbed, even should the patient suspend himself by the hands for fifteen or twenty minntes, and this too,

it will be recollected, when the chest is expanded by so much of the weight as rests upon the pectoral muscles.

"It is immaterial what this exercise is, provided the hands are made the fixed point. I have used a bar, confined to the ceiling at each end by ropes; from this bar the patient suspends himself by the hands, or, if sufficiently strong, he draws himself up until his chin reaches the bar, then bringing his arms into an extended position, he may repeat it as many times as his strength will permit; or he may throw his weight first upon one hand and then upon the other, alternately; but this requires much practice and muscular power. Another mode is to use ropes with knots every six or eight inches; these he uses to hold upon as he climbs up, or he may suspend his weight, holding by his hands, and swing back and forth; metallic rings may be substituted in the place of knots, answering the same purpose. If quite feeble, he can lean upon some object with his hands at arms-length, the object being of such a height that the body will be inclined at an angle of thirty-five or forty degrees; in this position the pectoral muscles will support a portion of the weight, and thus enlarge the chest. To secure the full advantage to be derived from this mode of exercise, it should be prosecuted faithfully. My advice has been, to repeat it every half hour, and continue it until a considerable degree of fatigue was produced."

ART. 45.—*The "Specific Treatment" of Consumption.* By RICHARD PAYNE COTTON, M.D. F.R.C.P., Physician to the Hospital for Consumption, &c., Brompton.

(*Medical Times and Gazette*, Feb. 13, 1858.)

In a 'Memoir' lately published in Paris,* and presented to the Imperial Academy of Medicine, Dr. J. F. Churchill has introduced to the profession, as a "specific" remedy for phthisis, phosphorus in certain combinations. A few months previously he had proposed its employment at the Hospital for Consumption at Brompton; but having then declined to make known its composition, the offer, like many others under similar circumstances, was necessarily rejected by the medical board. The new remedy, however, being now no longer a secret, and its efficacy, as stated in Dr. Churchill's work, being so "immediate" and unprecedented, Dr. Cotton has thought it a duty to give it a fair trial at the Hospital for Consumption, and to publish the results.

Dr. Churchill is of opinion that the direct cause of tuberculosis is the decrease in the system of the normal proportion of phosphorus in an oxygenizable state, and that the natural remedy should be sought in some compound of phosphorus at the lowest possible degree of oxydation. The hypophosphites appeared to him to offer the nearest approach to such a quality; and of these he selected the hypophosphites of soda and of lime, as being the most soluble, and assimilable."

* 'Sur la Cause immédiate, et le Traitement spécifique de la Tuberculose. Paris, 1858.

"They produce," he observes (p. 15), "a manifest increase of nervous power, sometimes even from the first day of their administration, together with an unusual feeling of comfort and strength. At the same time the nervous symptoms, if there have been any, disappear, as well as the functional derangement, such as weight, &c., of the intestinal mucous surface. The appetite increases, often in an extraordinary manner. The evacuations become regular, and more abundant; the perspirations, if they have existed, cease; sleep becomes calm and profound." He administered it to thirty-five consumptive patients, all of whom were either in the second or third stage of phthisis. Of these, "nine were completely cured, eleven experienced great melioration, fourteen died," and one was still under treatment.

Dr. Cotton's experience of this remedy is based upon carefully made observations upon twenty of his own in-patients at the Hospital for Consumption. Copious notes were taken by Dr. Walker and Mr. Ford, the resident clinical assistants, and are open to the inspection of those who may be desirous of obtaining further information. Dr. Churchill's rules for administering it were carefully attended to; five grains dissolved in water, with the addition of a small quantity of syrup, being given three times a-day. The cases consisted of nine males and eleven females, all of whom were adults. Three were in the first stage of consumption, five in the second, and twelve in the third. All were affected with the disease in its simple form, there being no other than the ordinary complications. The remedy was administered for a fortnight, notes being regularly taken; if at the expiration of this period no improvement was observable, it was discontinued; but if the patients expressed themselves relieved, other medicines were prescribed with the view of testing whether such relief was fairly attributable to "specific" agency, or to other circumstances—such as improved diet, rest, &c., which should always be taken into account in estimating the effect of medicinal agents upon hospital patients.

Of the three patients in the first stage of the disease, two were not perceptibly influenced by the hypophosphites, but afterwards improved considerably under tonic treatment and cod-liver oil; the other considered himself much stronger, but before admission to the hospital he had been almost starved, so that good diet, &c., may reasonably claim a fair share of the credit; and he left before other medicines could be tried.

Of the five patients in the second stage of the disease, two were not in any way influenced by the hypophosphites, but subsequently expressed themselves as feeling "much better" under tonic treatment with cod-liver oil; two slightly improved, but one of these afterwards advanced at a much more rapid rate under steel and oil, and the other seemed to get on quite as well under steel and quinine; the remaining one became much worse from a gradual advance of the malady.

Of the twelve patients in the last stage of the disease, one felt herself better under the hypophosphite than under any other remedy; one improved greatly, but not more than under the subsequent use of other tonics; three improved slightly, but afterwards progressed much

more rapidly under steel and cod-liver oil; two were not at all benefited, but found themselves "much better" under a change of treatment; in two cases no effect was observed, and in spite of all treatment, the disease ran on; one of the patients became worse, but subsequently gained strength under the oil and quinine; the remaining two died.

Thus, in only two instances could this remedy be said to act with any marked benefit, and in one of these its good effect was very equivocal, the patient previous to admission having been in an almost starving condition, and leaving the hospital before the comparative trial could be made with other medicines. In all the rest it acted certainly in no way as a "specific;" in most, it seemed to be inert; and the few cases which slightly improved during its administration were evidently instances of the *post*, and not the *propter hoc*, since some advanced equally, and many of them more rapidly under the subsequent use of steel or quinine with cod-liver oil.

It is very possible that the compound of phosphorus proposed by Dr. Churchill may in some cases have a tonic and beneficial influence; but to any "specific" action upon tuberculosis it seems to have no claim.

In a foot-note to the tabular statement made by the above-named clinical assistants, are the following remarks by Mr. Ford:—"As far as we can judge from these cases, it is obvious that the hypophosphites are of no therapeutic value whatever in the treatment of phthisis; indeed they seem to be simply inert, doing neither good nor harm, except indirectly in the latter sense by interfering with more positively beneficial modes of treatment." This opinion is fully endorsed by Dr. Walker.

The employment of phosphorus in the treatment of phthisis is by no means novel. For the last eight or nine years Dr. Cotton has been in the habit of using a mixture consisting of the dilute phosphoric acid with phosphate of iron, and at his suggestion it has been inserted in our Hospital Pharmacopœia. In many cases much good has attended its administration, but he attributes to it no *specific* action.

Phosphorus is a well known and apparently necessary constituent of all healthy nerve-structure; and in some conditions of low nervous vigour, its medicinal employment may be of very great service. We find that it enters largely into the composition of the most nutritive kinds of grain, and we may be quite sure that it is not placed there without a purpose.

ART. 46.—*The action of cod-liver oil in Chest Diseases, and the duty of hospital, dispensary, and parochial medical officers in relation to its administration.* By EDWARD SMITH, M.D., LL.B.

(*British Med. Journal*, Nov. 14, 1857.)

The object of the paper is to show, that whilst cod-liver oil is a valuable remedy, it acts simply as a fat with certain physical qualities, and may be, and ought to be, supplanted by the ordinary fats used in food. The author points out the numerous and serious evils which

arise from public patronage of this remedy by the profession, as regards the relation which exists between the public and the profession, and the great expense imposed upon our charities and poor-law surgeons. He believes that it has tended to lessen the gains of the profession by the indiscriminate employment of it by the public without professional advice, and has tended greatly to lessen the respect for the knowledge of the profession which it is the interest of both the profession and the public to maintain, and, in fact, that it has become, under the especial patronage of medical men, the great quack medicine of the day.

He first considers the chemical constitution of the oil, and then the state of system existing in phthisis, and particularly enters into an inquiry which he had instituted upon 500 cases as to the appetite for the various fats in food, and the appetite for, and the effects of, the oil. He finds that there was a diminished appetite for fat in phthisis, but that in no case was the dislike absolute; and in all some kinds of fat could be taken when others were rejected. Thus, fat meat was taken by more than half of the patients, and bacon fat by two-thirds; whilst suet, in puddings, butter, and milk, were taken by more than nine-tenths of the whole. Afterwards, he states the result of the effect of cod-liver oil upon 150 in-patients, and proved that in nearly half of them the oil was rejected or of no real service. Of 83 who reported themselves benefited, by far the larger portion referred the good effect to improved assimilation; whilst of 67 who were unable to continue its use, or who were not benefited, the ill effect was referred to sickness and other circumstances connected with the first acts of digestion. After thus showing the degree of good and harm resulting from the oil, and the degree of appetite for, and dislike of, fat of various kinds in food, he proves that in the large majority of cases there was an appetite for fats when oil did good, and the contrary when it did harm, but this was not universal; and he also proved that in the very cases in which the oil was rejected there was always appetite for some kind of fat food, and in some cases even for the fat of meat. Hence he proves that there was no ground for the assertion that the oil was more easily digested and assimilated than some of the natural fats in food. The inquiry and medical testimony now prove that cod-oil acts beneficially as a nutrient; and he affirms, from special experience, that the oil has no advantage over the fats in food, provided an increased quantity be taken of such of the nutrient fats as the patient can eat. Hence he urges the profession to distinguish properly between food and physic; and, if the oil is administered as a nutrient, to inform the patient that it is given as food, or, as he preferred, to direct them to increase the nutrient fats in proper quantities and of a suitable kind, and to administer other articles as medicine.

The following are the author's conclusions:—That neither cod-oil nor fat of any kind removes phthisis. That the cases of arrest of the disease are very few. That commonly the disease progresses, and is as fatal now as it was before the oil came into general use. That in about half of the cases the rate of progress is retarded. That the patient may be both stronger and stouter, and yet the disease quietly progress. That when the oil disagrees, it is chiefly from its influence

upon the digestive organs. That when it agrees, it is chiefly by improving nutrition; but that in many cases it is believed by the patient to have a local influence. That this local influence is most important in the pharynx and other parts of the mucous tract. That it acts almost entirely as a fat, and supplies a defect in the system. That it has no advantage over fats used in food, and may, like some of them, be taken and rejected. That there is a large class in whom it is not beneficial, and it should be used with discrimination. That it is our duty and our interest to dissociate food and physic. Lastly, that it leaves the essence of the disease untouched; but that the great good which it often does temporarily, proves the importance of fat in the animal economy.

Dr. Smith shows how much more frequently there is appetite for fat in bronchitis than in phthisis and mere debility, and particularly in liver diseases; but he defers the discussion of the question, and of the use of fats in general to another occasion. He urges upon the profession the impropriety of poor-law surgeons being compelled to supply the oil, when the guardians ought to give fat in food; and of the medical officers of hospitals and dispensaries taxing the overburdened funds to supply so expensive a food.

ART. 47.—*The effect of local influences on Spasmodic Asthma.* By Dr. HYDE SALTER, Assistant-Physician to Charing-cross Hospital.

(*Lancet*, Dec. 26, 1858.)

The purport of this paper is to show that, in a very large proportion of cases of asthma in which it has been fairly tried, change of locality effects an instantaneous cure, which is permanent as long as the asthmatic continues his residence in the place that has cured him. The author remarks that, although the subject of his paper is a single method of cure of a single disease, yet that the efficacy and completeness of the cure, and the painfulness and intractibility of the complaint, vindicated it from unimportance; and, indeed, that in so distressing and unmanageable a disease, any remedy that offered even a small percentage of cures might be considered the greatest possible boon. The paper is illustrated by nearly thirty original cases, and the points that the author considered to be established are as follows:—

1. That residence in one locality will radically and permanently cure asthma resisting all treatment in another locality.
2. That the localities which are the most beneficial to the largest number of cases are large, populous, and smoky cities.
3. That this effect of locality depends, probably, on the air.
4. That the air that would be imagined to be the worst for the general health is, as a rule, the best for asthma; thus the worst parts of cities are the best, and conversely.
5. That this is not always the case, the very reverse being sometimes so—a city air not being tolerated, and an open, pure air effecting a cure.
6. That there is no end of the apparent caprice of asthma in this respect, the most varying and opposite airs unaccountably curing.

7. That, consequently, it is impossible to predict what will be the effect of any given air, but that probably the most opposite to that in which the asthma seems worst will cure.

8. That some of these differences, determining the presence or cure of asthma, appear to be of the slightest possible kind, arbitrary, and inscrutable.

9. That the mere conditions of locality appear to be adequate to the production of asthma in a person whose disposition to it was never before suspected, and who probably never would have had it, had he not gone to such a locality.

10. That, consequently, probably many healthy persons who never have had asthma, and never may, would have been asthmatics if their lot had been cast in other localities.

11. That possibly there is no case of asthma that might not be cured if the right air could only be found.

12. That the disposition is not eradicated, but merely suspended, and immediately shows itself on a recurrence to the original injurious air.

13. That change of air, as change, is prejudicial.

14. That, from the caprice of asthma, the constancy of the result in any given case is often deranged.

In reference to the frequency with which London air is beneficial to asthma, the author remarked that he was in the habit of putting to country asthmatics the two questions—"Have you ever been in London? have you ever had asthma there?" and that, if an affirmative answer was given to the first question, a negative one was pretty sure to be given to the second. In his own experience he had found hardly any exception to this rule.

ART. 48.—*On Intercostal Neuralgia.* By A. W. NICHOLS, M.D.

(*Buffalo Medical Journal*, July, 1857; and *North American Medico-Chirurgical Review*, March, 1858.)

Dr. Nichols treats of the causes, symptoms, diagnosis, and treatment of intercostal neuralgia, his remarks being based on an analysis of twenty recorded cases. The results of the analysis go to show that this affection generally occurs after puberty, and under thirty-five years of age. It occurs in persons not enfeebled, but apparently possessing good constitutions. It appears to be developed in those who are engaged in active occupations rather than in those of sedentary habits. All but two of the cases analysed were observed in the latter part of winter and early part of spring. The left side is more commonly affected than the right. Both sides are rarely affected. It is sometimes observed in the course of pulmonary tuberculosis, and frequently during or after an attack of periodical fever.

As regards the symptomatic phenomena, the histories of these cases confirms the correctness of the descriptions of the affection given by Nicol, in 1818, and, more recently, by Bossereau and Valleix. The most distinctive feature is the existence of pain, and tenderness on pressure, limited to particular points on the thoracic and abdominal

parietes. These points are, *first*, slightly to the outside of the spinous processes of the dorsal vertebræ and almost over the dorsal-intervertebral foramina, just opposite the divisions of the spinal nerves into their anterior and posterior branches; *second*, about midway between the spinous processes and the margin of the sternum; and, *third*, near the edge of the sternum, or on the abdomen at the side of the median line. The pain or tenderness may be limited to one or two of these points, and often all three are affected. The tenderness is very circumscribed, extending over a space which may be covered with the ball of the thumb.

The treatment which seemed most efficient consisted of vesication, anodyne, and tonic remedies. The affection was found to persist, in several instances, for some weeks.

ART. 49.—*The Chest Goniometer.* By Dr. SCOTT ALISON, Assistant-Physician to the Brompton Hospital for Consumption.

(*Lancet*, Nov. 14, 1857.)

This instrument consists of two arms, moving on a centre, to one of which is fixed an arc of a circle, and to the other a hand or index. When the two arms are separated so as to form a straight line, the arc and the index are at right angles to them, and the index points to 180°, the half of a circle. The arms are placed upon the part of the chest to be measured, and made to fit it; the angle is then read off. The two sides of the chest are measured and compared, and the slightest deviation from symmetry is at once detected. The discovery of depression in very early or doubtful phthisis, when the ordinary percussion and auscultatory signs are ill pronounced, readily obtained by this instrument, promises to render it a valuable aid in diagnosis. It will also serve to mark from time to time, with greater precision than by the eye, the progress of disease, whether favorable or unfavorable, as indicated by the form of the chest. The instrument is made of ivory, and is very light and portable. Dr. Alison is collecting observations with it, which he promises shortly to lay before the profession.

ART. 50.—*A new Percussion Hammer.*
By Dr. VERNON, Physician to the Great Northern Hospital.

(*Lancet*, Feb. 6, 1858.)

"The hammer of which the above drawing is a representation is one," says Dr. Vernon, "which suggested itself to my mind several years ago, when attending the clinique of Dr. J. Hughes Bennett, of Edinburgh. Having latterly been more frequently engaged in the

diagnosis of thoracic diseases than at any previous time since the idea suggested itself to me, I have had the instrument made by Messrs. Whicker and Blaise, of St. James's Street. The hammer consists of a slender tapering handle of whalebone, eight inches in length, surmounted by a sphere of bell-metal, weighing one ounce. The sphere of metal is grooved deeply in an equatorial direction, and a stout ring of caoutchouc is let into the groove, as a cushion upon which to strike. Such is the instrument—simplicity itself.

"The advantage which a percussion hammer has over the fingers is very obvious, especially in cases where much refinement is required. The rudest efforts of an unskilful neophyte will distinguish between the dulness heard in the centre of the hepatic region and the generous resonance of the upper and anterior parts of the thorax. But the greatest utility of percussion is precisely in those cases where we desire to distinguish slight differences, and hence the advantage of a means of defining such distinctions.

"The purpose of a percussion hammer being to produce a clear and definite sound, and not to drive a nail into the body, instead of imitating a carpenter's hammer, as Dr. Winterich has, I have rather taken a hint from the musician, and imitated a drum-stick. The advantages possessed by the hammer in the accompanying figure are—

"1. That the stem being round and smooth, it may be lightly and easily handled.

"2. That the handle being elastic, the hammer-head springs off the pleximeter momentarily, as the hammers of a pianoforte do off the strings of that instrument; the result being a clear tone, the vibrations of which are not checked by the lingering of the hammer on the vibrating body.

"That in whatever direction the hammer falls on the body, if the same spot be struck with the same force, the note produced will be the same; because the handle of the hammer being round, and the head spherical, every axis is equal in length, and the line through which the force acts is equal, in every possible position of the hammer, the operator, or the patient.

"To sum up, the superiority of this instrument over Dr. Winterich's consists in the facts, that it is convenient, elastic, produces the same sound however held, requires no education to use it, and fulfils all its purposes.

"In children and very spare adults I prefer the fingers, because they are generally sufficient, and they recognise the sense of *resistance;* but in even moderately-developed adults I believe a hammer, and especially the one I have described, will be of great service to those who are not very skilful with the fingers, or have hands too light to elicit the desired sounds."

(c) CONCERNING THE CIRCULATORY SYSTEM.

Art. 51.—*A peculiar case of Leukhæmia.* By Dr. N. Friedrich, of Würzburg.

(*Virchow's Archiv*, Bd. xii, Ht. 1, p. 104; and *Med.-Chir. Review*, April, 1858.)

This case, in which a peculiar state of the mucous membrane of the digestive organs coexisted with the altered state of the blood, is related at considerable length. The following abstract is by Dr. J. W. Ogle:

Case.—The patient was a woman, æt. 46, who died eventually, having fallen suddenly into a syncopal condition. The outer lymphatic glands were hardly at all enlarged, but the glands about the mesentery and stomach were very much so, showing on section homogeneous soft white masses, very like some portions of the thickened spongy pleura formed from fresh and old pseudo-membranous deposits, and found within the thorax. The most interesting observation after death was the unusual state of the mucous membrane of the stomach and intestines.

From the cæcal valve upwards as high as the duodenum, numerous large and small flat and prominent elevations existed, having the closest resemblance to the pulpy typhus infiltration previous to ulceration. These were very plentiful in the lower part of the ileum, where the mesenteric glands were largest, and were obviously occupying the place of Peyer's glands, but were not entirely confined to them. They showed, on section, the same appearances as the mesenteric glands. The large intestine was free from these tumours, excepting the rectum, which contained one or two. In connexion with one of these leukhæmic enlargements, in one place a varicose lymphatic vessel of the size of a small quill, and filled with white juice, was seen passing into an enlarged lymphatic gland, but no outgoing vessel from the gland could be distinguished. In the stomach, near the cardiac end, and on the posterior wall, a flat, irregularly bounded elevation, covered by mucous membrane, existed, and several such were seen in the pyloric half of the stomach. These were evidently of the same nature as those in the intestine. The spleen was enlarged, the pulp being very soft, and the Malpighian bodies very large, the trabecular work being very indistinct. The reaction of the spleen, pulp, and of the splenic venous blood was intensely acid. The liver was enlarged, showing in one part a cavernous blood-tumour; and in another part, almost occupying the entire thickness of the viscus, was a soft, roundish tumour of a grayish-white colour and pulpy consistence.

On microscopical examination, the author concluded that the intestinal tumours had the same histological elements as the enlarged glands; namely, large and oval nuclei, as also round cells, chiefly with single nuclei. The tumours appeared to have no original relationship to the pre-existing follicles of the mucous membrane, but to be developed in the mucous and submucous tissues. On examining parts of the deepest portions of the tumours, where connected with the deep layer of the submucous tissue, the numerous and enlarged areolar tissue-cells were seen to contain two and more endogenous nuclei and cells undergoing fatty degeneration; and every transitional form up to large and oval spaces filled with various endogenous formations, presented

themselves. The follicles of the mucous membrane were seen to be atrophied and filled with fatty detritus.

The author traces the origin of the colourless elements to the areolar tissue corpuscles of the intestinal mucous membrane, and in the same way he traces the growth before spoken of on the pleura, and which consisted of numerous colourless elements, partly nuclei and partly cells, to the pre-existing areolar tissue corpuscles of the pleura. He declares that in the most beautiful manner it can be seen how by endogenous formation within them, at first two or three, and later on more, nuclei arise, which grow to such an extent that the special areolar tissue of the pleura can hardly be seen. This endogenous cell-growth appears to occur without any special preceding afflux of blood. The spleen showed white follicles, consisting of small, colourless cells, containing fat-drops, as also many free nuclei, some fine fatty detritus, and remains of cells. Here and there large cells, with many endogenous nuclei, were seen. The pulp contained numbers of spindle-shaped spleen corpuscles, and many large and small colourless cells, some being in a state of fatty degeneration, others containing many nuclei, also a great number of large blood-corpuscle-holding cells. The hepatic cells were double or three times their natural size, and most of them were very irregular in size, containing two or three large, sharply-contoured, round and oval nuclei. The liver substance, like the spleen, gave an acid reaction. The grayish-white tumour within this viscus consisted of small, round, nucleated cells, and also free nucleus-like bodies in a soft connective tissue stroma, containing spindle-shaped cells. The author supposes the colourless elements to have arisen from the areolar tissue cells of the hepatic stroma when undergoing contemporary growth. He also found in the middle of the tumour a circular space, in which large, clearly contoured cells filled with many endogenous glittering nuclei existed. This is supposed by the author to be analogous to the newly formed follicle found by Virchow (see his 'Gesammelte Abhandlungen,' s. 207) in the liver of a leukhæmic patient, and considered by him as a degenerated areolar tissue corpuscle, enlarged by endogenous growth. The blood was also generally very acid, especially in the splenic vein blood, where were found the largest number of white corpuscles. The above case tends to confirm the observations of Virchow upon the existence of leukhæmic tumours of the liver and kidneys, and upon the supposed part which connective tissue corpuscles play in the production of colourless forms in leukhæmia; and also those of Schreiber ('Dissert. Inauguralis') as to the changes in the intestinal membrane. The author also quotes a case of leukhæmia related by Robin and Isambart ('Gaz. Medic.' 1856, p. 682), in which Peyer's patches were pale and enlarged; and alludes to the observations of Virchow and Leydig, who suppose a most intimate connexion to exist between connected tissue corpuscles and the commencement of lymphatic vessels. He concludes by drawing an analogy between leukhæmia and abdominal typhus, both in respect of certain anatomical characters, increase of colourless corpuscles, &c., as also in the tendency to hæmorrhage, the formation of ulcers of the mouth and skin, the diarrhœa, &c. He mentions the interesting fact that the pulpy tumour mass, on exposure to the air, assumed a reddish colour, as did the leukhæmic pleural patch, and this accords with the observations of Virchow, Valentin, Gubles, and Quevenne, as to the spontaneous change of colour which lymph corpuscles undergo under the action of the air.

Art. 52.—*Remarks on 70 cases of Hypertrophy of the Heart.* By Dr. Van der Byl.

(*Medical Times and Gazette*, May 1, 1858.)

These remarks were made at a meeting of the Pathological Society after the exhibition of certain specimens of the disease in question: "Hypertrophy of the heart occurred in 70 cases out of 380 post-mortem examinations; that is, in 18·4 per cent. of patients dying from various diseases. In all the cases the heart weighed upwards of 14 oz. in the adult male, and upwards of 12 oz. in the females. Of these 70 cases, 46 were males and 24 females. The average age of the males was 43·3 years; the average weight of their hearts was 19·3 oz. The average age of the females was 41·6 years; the average weight of their hearts 15·6 oz. Some of the principal morbid appearances associated with hypertrophy of the heart in these 70 cases were: Disease of the aortic valves in 36, of the mitral in 32; in 22 of these, aortic and mitral disease coexisted; vegetations on the aortic valves in 9, on mitral in 5; adherent pericardium in 9; atheroma of aorta in 13, of pulmonary artery in 1; cerebral hæmorrhage in 4; bronchitis in 10; phthisis in 7; granular disease of kidneys in 46; cirrhosis of liver in 21, &c. The eight volumes of the 'Transactions of the Pathological Society' contain accounts of 40 cases of hypertrophy of the heart, in which the weights are given. Of these 34 were males, and only 6 females. The average age of 31 of the males was 44 years; the average weight of the heart of the 34 males was 22·1 oz., the the heaviest weighed 40 oz. The average age of the females was 37·5 years; the average weight of their hearts was 17·5 oz. Disease of the aortic valves occurred in 28, of the mitral in 17; in 14 cases aortic and mitral disease coexisted. From this analysis of Dr. Van der Byl's observations, and of the cases recorded in the 'Transactions,' it appears: 1. That hypertrophy of the heart occurs in nearly 18½ per cent. of patients dying from various diseases. 2. That it is about twice as frequent in males as in females; or, exactly as 8 to 3. 3. That the average age of males and females is nearly the same; that of the males being 43½ years, and of the females 39½. 4. That in hypertrophy of the heart disease of the aortic valves is more frequent than disease of the mitral; as 8 to 6. 5. That in hypertrophy vegetations are more frequently situated on the aortic than on the mitral valves. 6. That adherent pericardium exists in about one eighth of the cases. 7. That granular disease of the kidneys occurs in about two thirds of the cases."

Art. 53.—*A remedy for Palpitation.* By Dr. Kölliker.

(*Verhandl. der Phys. Méd. Gesellsch.*; and *Edinb. Med. Journal*, May, 1858.)

In a case of severe palpitation, Dr. Kölliker has found that deep inspiration and subsequent holding of the breath sufficed, after a few times, to cut short this most unpleasant symptom.

ART. 54.—*A case of sudden death from the impaction of a detached clot in a contracted mitral orifice.* By Dr. VAN DER BYL.

(*Lancet*, Jan. 30, 1857.)

At a recent meeting of the Pathological Society of London, Dr. Van der Byl exhibited a fibrinous coagulum or globular vegetation, which had been found in the left auricle of a woman, æt. 25, who had died suddenly in the Middlesex Hospital. For three weeks before her death she had suffered from œdema of the legs, ascites, orthopnœa, and frequent cough. The heart's action was rather forcible with mitral regurgitant bruit; and that she never had rheumatism. The urine was very albuminous, but contained no casts of tubuli. On the 4th of November, after breakfast, she suddenly fainted; she was seen almost immediately by the house-surgeon, Mr. Tatum, and then appeared insensible; the pulse was scarcely perceptible; the heart's beat was strong and quick; respiration gasping. The heart's action ceased in about a minute; she then gasped four or five times, and died.

Post-mortem examination.—The heart was found enlarged, weighing fourteen ounces and a half. On opening the left auricle, an irregular, shaggy-looking mass was seen sticking in the mitral orifice. When it was washed out and floated in water, it assumed a sac-like appearance, and was about the size of a pigeon's egg. The portion required to complete the sac or capsule was found adherent to the inner surface of the auricular appendix by means of fibrinous bands and processes, which were entwined in the musculi pectinati. Three or four smaller globular bodies, about the size of peas, were found in the left auricular appendix, similarly fixed. On squeezing one of these, it burst, and yielded a thick grayish, purulent-looking matter, which seemed to form the contents of a capsule, similar to, but smaller than the one found detached in the auricle. There can be no doubt but that the larger capsule was of exactly the same nature as the smaller ones, and that they all are fibrinous coagula, in which the central portions have softened or broken up. There was no actual organic union between any of these coagula and the walls of the auricle. The mitral orifice was much contracted, and measured only four-tenths of an inch in diameter. The chordæ tendineæ of both flaps of the mitral nerve much thickened and shortened; the apices of both papillæ to which the chordæ were attached presented a white fibroid appearance; some small warty vegetations projected from the free margins of the contracted mitral orifice. The aortic valves were perforated by several small openings, on the posterior wall of the left ventricle, half an inch below the aortic valves, the endocardium presented a thick, rough patch, resembling a cicatrix, about the size of a shilling. The brain was healthy, and there was no obstruction in any of the vessels. In each lung there were two or three firm black masses of recent apoplexy, each about the size of a hen's egg. The liver was nodulated and granular; and, on section, presented radiating patches of extravasated blood. The spleen was marked by a depressed, firm fibroid patch, extending half an inch into its substance. The kidneys were granular; on section, the right at its upper end, exhibited a firm yellow patch, extending as deep as the cortical substance, and about two inches in length; at about one inch from this was a smaller yellowish patch, not so firm as the large patch, and more granular; near the lower extremity were three or four cysts, about the size of peas; the left kidney was marked by a superficial yellowish patch.

(D) CONCERNING THE ALIMENTARY SYSTEM.

ART. 55.—*Curious case of Gastro-cutaneous Fistula, and observations on other cases of the same kind.* By Dr. MURCHISON.

(*Proceedings of Royal Med. and Chir. Society*, vol. ii, No. 1.)

The author saw the subject of the following history when on a visit to Aberdeen, in May, 1857. The patient was then under the care of Professor Keith, who indeed supplied the particulars of the case.

CASE.—Catherine R—, æt. 34, was admitted into the Aberdeen Royal Infirmary, under Dr. Keith, February 19th, 1857. She is the daughter of healthy parents, both still alive; but one of her brothers is epileptic, and of two of her sisters, one is the subject of hysterical fits, and the other idiotic. The patient herself, about the age of eighteen, began to exhibit hysterical symptoms of the most aggravated form. On more than one occasion, she has been convicted of feigning diseases, so as to deceive her friends and medical attendants. In 1844 she succeeded, by applying a tight ligature around the shoulder, in producing such a solid œdematous condition of the left arm, that it was believed by her medical attendants to be elephantiasis. After two years of unavailing treatment, at her own suggestion she was admitted into the Aberdeen Infirmary, under Dr. Keith, with the object of having her arm amputated. Dr. Keith, however, exposed the fraud; and three weeks' confinement in a strait-waistcoat cured the arm. Some years after this, she fancied she had heart-disease, and a seton was introduced by a surgeon into the epigastrium. This seton was allowed to ulcerate out; and the patient contrived to prevent the resulting ulcer from healing, by making constant pressure upon it with a copper penny-piece. The ulceration continued to advance; and after three years—viz., on March 2d, 1854, it penetrated into the stomach, this organ having been previously contracted, adhering to the abdominal parietes. On removing the dressings on this day, a quantity of fluid, with a piece of biscuit and orange-skin, escaped from the opening. This opening continued to enlarge; and the only way she could retain her food was by keeping it closed with a gutta percha plug.

On her admission into the Aberdeen Infirmary, in 1857, the opening was situated partly in the epigastric, and partly in the umbilical regions, measuring four inches transversely, and three from above downwards. When the plug was removed, everything she swallowed immediately escaped from the opening; and, if the patient raised herself up, or coughed, the whole stomach became everted. The mucous membrane was of a bright vermilion-red colour, disposed in rugæ, along which undulatory movements could be observed. Blue litmus paper, applied to the moist surface of the empty stomach, was not reddened. The stomach could be manipulated in the freest manner, without causing any pain, the only result being a slight feeling of faintness or nausea. The integuments surrounding the opening were red, glistening, and tender. Her appetite was good, often ravenous; and she could eat and digest any kind of food. She was much troubled with thirst, and had only one motion of the bowels in twelve days. For nine years she had been confined to bed, but more from pretended than real ailments; so that, at last, her joints had become stiff, and she was unable to stand.

The author then gives an account of an experiment which had been performed upon the patient by Dr. Keith, to demonstrate the mechanism of vomiting. From this it would appear that there is first contraction of the pyloric extremity of the stomach itself; but that the evacuation of the organ is chiefly caused by its compression, from the simultaneous contraction of both the diaphragm, and recti and oblique muscles.

Dr. Murchison then gives a brief extract of all the cases of fistula opening into the stomach from without, which he had been able to collect from the records of medicine and surgery during the last three hundred years. They amount to twenty-five, including that of Catherine R. He then proceeds to make some general observations on these cases, under the following heads:

A. *Causes of gastro-cutaneous fistula.*

I. *Mechanical injuries:* seven cases.

1. Incised wounds of the abdomen penetrating the stomach, and ending in permanent fistula: three cases.
2. Gun-shot wounds: two cases.
3. A blow over the stomach, ending in abscess, which opened both externally and into the stomach: one case.
4. Ulceration from without, caused by pressure: one case.

II. *Disease:* eighteen cases.

1. Cancer of the stomach: six cases.
2. Simple perforating ulcer of the stomach: probably twelve cases.
3. An abscess originating external to the stomach, and opening both into this organ and externally, may have been the cause in one or two cases.

B. *Situation, size, and other characters of the external opening.* In none of the cases hitherto recorded did the opening at all equal in size that which exists in Catherine R.

C. *Escape of food swallowed by the abnormal opening.* This was observed in all the cases; but in six, fluids only are noted as having escaped. In the case of St. Martin, the necessity for an artificial plug became, after a year or two, superseded by the formation of a natural one, from a fold of the mucous membrane of the stomach. The author pointed out that the escape of food, recently swallowed, from a fistulous opening in the abdomen, did not necessarily indicate a *direct* communication with the stomach.

D. *Duration of the fistula, and possibility of cure.* In cases resulting from cancer of the stomach, death, as might be expected, speedily ensues; three months being the longest period that a patient has survived the fistula. On the other hand, where wound or simple ulcer of the stomach has been the cause, the patients have generally lived many years, apparently in the enjoyment of good health. One case is on record of a woman who lived twenty-seven years with a fistula into the stomach; and the opening into St. Martin's stomach has existed for thirty-five years, he being still alive and in good health. As to the question of cure, the author stated that in four of the cases the fistula

pears to have closed spontaneously, but in two of them it reopened. In two other cases the obliteration of the fistula was the result of treatment; but in none of the cases was any cutting operation resorted to.

E. *General health of persons affected with gastro-cutaneous fistula.* In permanent fistula, the general health has in most cases been wonderfully good. The chief abnormal symptoms have been great thirst, increased appetite, obstinate constipation, deficient secretion of urine, and, in women, amenorrhœa.

F. *The physiological observations which have been made in cases of gastro-cutaneous fistula.* In six of the cases observations had been made as to the appearance of the gastric mucous membrane, and the movements of the stomach, etc. Out of four cases in which the colour of the mucous membrane has been noted, it has been a bright vermilion red in three; but in the case of St. Martin it was a "pale pink," varying in tint with the full or empty state of the organ. Movements of the stomach, for the most part of an undulatory nature, have been observed in five of the cases. In three cases, irritation of the mucous membrane has been observed to give rise to nausea and faintness, but not to cause any pain.

The author goes on to notice the various theories which have been entertained as to the mechanism of the act of vomiting; and stated that, from all the observations that had been made, including that upon Catherine R., the following conclusions might be arrived at:

1. The act of vomiting is produced by the contraction of both the stomach and the abdominal muscles.

2. The contraction of the stomach is limited to the pyloric extremity, and has for its main object the closure of the pylorus.

3. The chief part of the act is effected by the contraction of the diaphragm, as well as of the recti and oblique muscles.

In three of the cases observations had been made on the chemical and physical characters of the gastric juice, and on its digestive powers over different articles of diet; viz., on Madelaine Gore, in Paris, at the commencement of the present century, by M. Clarieu; on Alexis St. Martin, by Drs. Beaumont, Dunglison, and Smith; and on a female at Dorpat, in 1853, by Messrs. Otto Von Grünewaldt and Ernst Von Schrœder. The nature of the results arrived at, in each of these cases, was briefly alluded to, and they were stated to be of a somewhat conflicting character.

No experiments as regards the gastric juice have as yet been undertaken in the case of Catherine R. Although the fistula, in her case, affords unparalleled opportunities for making such experiments, the author doubted if the results obtained would be of much value in her present debilitated state of health. He observed, however, that for some months she had been improving in strength, and expressed a hope that she might yet become a fit subject for experiment.

The paper was illustrated by numerous photographs of Catherine R., and by drawings of several of the other recorded cases of gastro-cutaneous fistula.

ART. 56.—*On some of the Inflammatory and Obstructive Diseases of the Cæcum; with remarks on the abuse of violent purgatives.* By W. R. ROGERS, M.D.

(*British Med. Journal*, Sept. 17, 1857.)

The author commences by alluding to the slight and cursory notices of these diseases in systematic treatises on medicine, and how frequently they are confounded with essentially different diseases of the intestinal canal. They are of frequent occurrence, are dangerous, and often fatal, and are characterised by a train of symptoms which render their recognition certain. He believes that the cæcum may be the seat of fatal diseases without any other part of the digestive tube being implicated; and that it often is first in the chain of causation of other disorders, with which it has been generally *believed* to be only accidentally related, these evincing the most marked disturbance, while the cæcum apparently exhibits but little disorder. Thus its diseases are not unfrequently mistaken for hysteritis, cystitis, enteritis, peritonitis, puerperal fever, and pelvic abscess. The author quotes Tiedemann and Gmelin, Drs. Copland, Carpenter, and others, to prove the importance of the cæcum in the animal economy, partaking of the nature of a stomach in the gramnivorous and ruminating animals, and that it is the viscus in which the last act of digestion is performed, secreting an acid, albuminous, and solvent fluid, and also pouring out of its numerous follicles an unctuous and oily material, with hydro-sulphuretted gases, to be eliminated from the economy. Thus, like the lungs, kidney, and skin, it is a depurating organ, so that when costiveness exists there is danger of these excretions being reabsorbed and contaminating the blood. He states that he had within the last twenty years met with not a few cases of these diseases, some of which he would class as "acute," others "chronic," inflammation of the cæcum—tuphlo-enteritis; they had not appeared to arise from the ordinary causes of inflammation—viz., exposure to the vicissitudes of the weather, or alternations of temperature, but seemed to be produced by some mechanical, exciting, and irritating cause, the lodgment of impacted, hardened fæces, undigested food, fruit, skins, and stones of fruit, and concretions of varied and different kinds, and often arise while the person is in good health. The symptoms may begin mildly, and gradually proceed to greater intensity; or they may, in excitable subjects, be violent from the onset. There is but little febrile disturbance compared with the local pain and suffering; less anxiety of countenance than in enteritis; pulse not small, or much quickened at the commencement; there is great tension and tenderness over the cæcum, so that the least pressure cannot be borne; there are no rigors; the pain is constant, does not intermit, and its area goes on extending till the whole abdomen is involved; but the right ileo-inguinal region is ever the most tender part. There is obstinate costiveness; nausea and violent vomiting may set in, especially when drastic purgatives have been persevered in; the position is characteristic—the patient lies on the right side, body bent, and thigh drawn up; the countenance has not the

anxious aspect of enteritis. If neglected or wrongly treated, the abdomen becomes tense and tympanitic, and general enteritis or peritonitis may supervene. Should the appendix be inflamed or ulcerated, all the symptoms are more acute, and likely to terminate fatally by peritonitis or fæcal abscess. In the progress of these diseases, adhesions are often formed in its interior, or to other parts; the areolar tissue around may inflame, suppurate, and give rise to abscess, which may tend upwards and downwards, and require to be opened; they may either open externally, or find their way into other parts of the intestinal canal, the patient recovering, or may die worn out by the discharge. Should the ulceration open into the peritoneum, peritonitis of a diffused and fatal character will be set up, as in one of the cases related by the author. This termination is fortunately most rare, though not uncommon in typhoid and dysenteric fevers. When resolution takes place, it is preceded by action of the bowels and gradual subsidence of the pain, tenderness, sickness, and fever, about the fourth, sixth, or even the eighth day. This result can only be obtained by most judicious treatment; but when mistaken, and treated too actively by large and repeated bleedings, or violent and continued purgatives, there is much danger of a fatal termination, or of long and protracted convalescence. If fæcal abscess forms, the drain on the system is long and exhausting. The author coincides very much with Doctor Burne, whose papers in the 'Medico-Chirurgical Transactions' he refers to. In these acute cases, leeching, fomentations, soft poultices, mild effervescing aperients, and large bland enemata, will often resolve the inflammation; if not, calomel and opium, or opium alone, should be given, but violent purgatives are to be avoided. Dr. Rogers places great reliance on bland mucilaginous enemata, passed into the bowels with a long O'Beirne's tube, with which he has often relieved and cured cases of simple obstruction and constipation that had resisted other treatment; he thinks the use of this instrument is much neglected. The author lays great stress on cautious dieting, which should be, for a long time, of the simplest and blandest form—arrow root, rice, milk, eggs, and subsequently beef-tea and jellies. In those forms of acute inflammation that have supervened on some sub-acute chronic form, long perseverance in this cautious regimen is even of more importance. In chronic inflammation, careful regimen and regulated action of the bowels are essential; the symptoms now are all more or less subdued and indistinct: irregular action with colicky pains; diarrhœa alternating with costiveness and fœtid dejections; hardness and fulness over the cæcum, with tenderness on pressure. The author relies on blisters, iodine, and liniments, mild saline aperients, and strict attention to dietetic rules: from neglect of these, he has had occasionally to regret the loss of a patient. In simple obstruction he relies on large enemata and mild saline aperients, with a sedative, as hyoscyamus, belladonna, &c.; he quotes cases from different authors on the frequency of these obstructions and the mistakes often committed by the reckless abuse of violent purgatives, which, even in cases of hernia, have been given till death removed the sufferer from his tortures. In the more obstinate cases, electricity, dashing cold water, tobacco fomentations over the

abdomen, and inflation with bellows, have each been successful. Should all means fail, operative surgery comes to our aid.

ART. 57.—*Sequel to a case of obstruction of the bowels, in which paracentesis was performed.* By Sir HENRY COOPER, Physician to the Hull Infirmary.

(*British Med. Journ.*, Aug. 8, 1857.)

The previous account of this case will be found in our 25th volume, p. 291.

CASE.—In March of the present year (fifteen months after the operation), Miss K— began to fail in flesh and strength; her appetite left her; and she had feverish attacks, with much abdominal tenderness. In May, while making an extraordinary effort in moving some heavy article of furniture, she felt "something give way" in her body; and from that time her symptoms steadily and rapidly advanced. A tumour for the first time became perceptible above the pubes, occupying the position and having something of the feel of a gravid uterus; the tenderness increased, with some distension. Once only in the course of this last illness was any interference necessary with the artificial opening into the gut. It was examined with the finger, which it readily admitted; and some scybalous accumulations were washed out of the distended bowel, into which it directly opened. After this no further difficulty was experienced. The tumour increased quickly, with severe constitutional symptoms; aphthæ, and the usual symptoms of failing vital power, showed themselves, and she died on June 10th.

Twenty-four hours after death, a *post-mortem* examination was made. The body retained considerable embonpoint; the abdomen was much distended, and partially tympanitic; there were several pints of effused fluid, with floating flakes of lymph, in the peritoneal cavity; but no other marks of recent serous inflammation. A large mass occupied the lower part of the abdominal cavity, reaching nearly to the umbilicus; its size equalled that of the adult human brain, and its appearance so similar, that it might almost at first view have been mistaken for that organ. On section, it presented all the characters of encephaloid cancer; in the interior, and toward the lower portion, were several cells of the size of walnuts, filled with gelatinous fluid. There was much difficulty in tracing the connexions and origin of this mass, so much were the character and relations of the organs disturbed by its size and structure; but eventually no doubt remained in our minds that the seat of the disease was the right ovary. The colon, especially the ascending portion, was much enlarged; it could be traced down, still much distended, to the commencement of the sigmoid flexure, where all traces of its structure were lost, and its calibre entirely obliterated by a growth of similar character to that of the ovary, but much denser and smaller. In front, the mass thus formed was crossed by a firm rounded band, which tied it tightly down to the neighbouring vessels. The uterus and left ovary were easily distinguishable, and quite healthy. The trocar was found to have punctured the cæcum in the widest and most prominent part; the gut itself was quite healthy, the opening patent, and the connexion between the mucous membrane and the skin precisely like that which occurs in other similar positions. There were no marks of inflammation or injury, except the firm old adhesions which had glued the surface of the gut to the abdominal parietes: in fact, nothing could look more natural and free from disease than the new opening and surrounding parts.

It would seem that the first link in the chain of diseased actions was the disease of the ovary, which, by its growth, either directly or through the

medium of the ligamentous band pressed upon and *partially* obstructed the calibre of the gut. The increase of the ovary caused progressive interference with the intestine, and, eventually, total occlusion; which could not, however, have been so close at the time of operation as it was afterwards found to be, as it then allowed freely the passage of the long tube, and of very bulky injections. But there can now be no doubt that the sigmoid flexure was the seat of the obstruction, and that Amussat's or Callisen's operation would have been admissible so far as regards the mere relief of the distended bowel. Probably the bowels had lost their expulsive power from over distension; and hence no fæcal matter or gas passed, though the stricture was sufficiently imperfect to admit the tube. The further progress of the case is due to the development of the cancerous masses, and to their mechanical effects on the neighbouring parts, but chiefly to the *general* effect of the disease in lowering and extinguishing the powers of life.

The practical object of making this statement is to point out that the operation performed was *in itself* perfectly successful; it at once and perfectly evacuated the canal, and restored the patient from imminent death; it produced no local ill effect; it answered its purpose for eighteen months, and might, as far as appears, have continued to do so to any period to which life might have been prolonged. The development of malignant disease, however, prematurely closed the scene.

ART. 58.—*Guarana in Chronic Diarrhœa.* By Dr. HERVÉ, of Lavour.

(*Bull. Gên. de Thér.*, May 15, 1857; and *British and Foreign Medico-Chir. Review*, Jan., 1858.)

Dr. Hervé, of Lavour, calls the attention of the profession to the employment of a substance which is in common use in South America, and particularly in Brazil, where cases of diarrhœa and dysentery present themselves in a very severe form. Those who inhabit that country know that every family has a little provision of guarana, and that as soon as any one is seized with diarrhœa or dysentery, a little of the substance is scraped and infused in a cup of boiling water. which is swallowed at once with or without sugar. Dr. Hervé, following the advice of Dr. Mialhe, has given it in infusion, in sugared milk, and it is then much more agreeable, and does not lose its special characters. For the last five or six years he has employed this medicine daily; it has never failed him in the most obstinate cases of idiopathic diarrhœa, and almost always it has ameliorated the condition of the patient even in the most serious symptomatic cases. The guarana or *paullinia* has been also employed in the treatment of headaches; and it has succeeded in some cases connected with gastric derangement, but it has failed in others.

The guarana, as a medicine, was first described by Cadet de Gassicourt, in 1817, from a fragment which had been brought to him from Brazil by an officer attached to the French embassy. On this specimen a ticket was fixed, importing that this substance was much employed in Brazil for cases of diarrhœa and dysentery. Towards the close of the year 1822, an inhabitant of the same country, M. Gomès, sent to Mérat a complete specimen; it was a mass presenting the form, colour, and volume of a sausage; there was joined to it a very rough bone, intended to act as a rasp, and which is always sold with the medicine. The learned botanist, Martius, afterwards occu-

pied himself in discovering the plant which yielded the guarana, and he classed the climbing shrub which furnishes the guarana seeds among the Sapindaceæ, under the name of *Paullinia sorbilis*, in consequence of its employment as a drink. It may be used in the form of pastiles, syrup, pills, tincture and pommade, as well as in powder, and in combination with chocolate.

(G) CONCERNING THE GENITO-URINARY SYSTEM.

ART. 59.—*On albuminuria in Typhus and Typhoid Fever.* By Dr. GEORGE JOHNSON, Physician to King's College Hospital.

(*Medical Times and Gazette*, Jan. 16, 1858.)

"It not unfrequently happens," says Dr. Johnson, in a recent clinical lecture on diseases of the kidneys, "that during the progress of typhus and typhoid fever, the urine contains one or more of the constituents of blood. The secretion may be simply albuminous in a greater or less degree, or it may contain a notable quantity of blood. A deep blood tinge of the urine is not likely to escape notice, but the urine may be very scanty and very albuminous, without any striking change of colour; and in such cases, if your attention has not been particularly directed to this circumstance in the natural history of fever, a very serious complication may be entirely overlooked, and therefore left without remedy. I shall probably have repeated opportunities of pointing out to you the complication of typhus and typhoid fever with renal congestion, a scanty secretion of albuminous urine, and the early occurrence of drowsiness passing into deep coma. In the mean time, bear in mind this practical advice. During the progress of typhus or typhoid fever, make it a point to examine the urine either daily or every other day, and test it for albumen. This can be done with so slight an expenditure of time and labour that the neglect of it is inexcusable. If you find that the urine is becoming albuminous and at the same time scanty, be sure that serious head symptoms will speedily appear, and give your prognosis accordingly, remembering that, *cæteris paribus*, the danger is great in proportion to the scantiness of the secretion of urine and the amount of albumen; greater, too, when this complication occurs at an early period of the febrile disease than when the malady is more advanced.

"With respect to the treatment of this acute renal disease occurring in connection with continued fever, I would simply remark now, that in every case repeated dry cupping in the loins is admissible and often very effectual. When the urine is very scanty, the albumen copious, and the drowsiness threatening, you may venture to abstract a few ounces of blood from the loins by the scarificator or by leeches, remembering that uræmic coma is more perilous than mere exhaustion, and that the relief of the renal congestion and an increased secretion of urine may be beneficially purchased at the expense of a few ounces of blood. Meanwhile the strength of the patient must be supported by liquid food and stimulants, according to the circumstances and symptoms of each case."

ART. 60.—*On Diuresis occurring in Acute Renal Dropsy.* By Dr. GEORGE JOHNSON, Physician to King's College Hospital.

(*Medical Times and Gazette*, Jan. 3, 1858.)

"What then," asks Dr. Johnson, in a recent clinical lecture, "is the cause of this copious diuresis, which you will find to occur during the favorable progress of every case of acute renal dropsy? In this case the abundant flow of urine was obviously not the result of diuretic medicine, for none was given. It was, if I may so say, a natural and spontaneous diuresis; and the following is, I believe, the explanation of the phenomenon. During the acute and congestive stage of the renal disease, the constituents of the urine, both solids and liquids, accumulate in the blood, and are then effused into the areolar tissue and the serous cavities. Now, urea is a most powerful diuretic, as is shown by the abundant micturition which follows the injection of this substance into the veins of a dog. As soon, then, as in a case of acute dropsy, the congestion of the kidney subsides, and the freedom of its circulation is restored, the retained urea begins to exert its natural diuretic influence; and the resulting copious secretion of urine speedily withdraws the accumulated ordinary solids and water from the blood; and then, by the quickened action of the absorbents, from the areolar tissue and serous cavities. In this way the dropsy is removed.

"I am sure from my own experience that in the treatment of acute renal dropsy you gain nothing by giving diuretics. Bear in mind that a diuretic medicine, such as squills, or cantharides, or acetate of potash, acts by stimulating the kidney to an increased secretion, while the drug itself is being eliminated with the urine. If then you give such medicines during the early stage of acute renal dropsy, while the vessels of the kidney are gorged, and its circulation nearly stagnant, you impose upon that organ an extra amount of work, without in any degree increasing the eliminative powers of the gland; and if you attribute to the action of your medicine the diuresis which sooner or later follows its administration, you fall into the very common error of mistaking the natural course of a disease towards recovery for the curative operation of drugs."

ART. 61.—*On a method of ascertaining the value of the several reagents employed in discovering the presence of Sugar in Urine.* By M. BÉHIER.

(*Bull. Gén. de Thér.*, Aug. 30, 1857; *Dublin Hospital Gazette*, Dec. 1, 1857.)

We recollect the eagerness with which the discovery of M. Bareswil's potash-copper liquor was received, which, applied to the examination of the urine, enabled us to recognise the presence of the smallest quantity of glucose. His method, though so easy of application, was still further simplified by promoting the reaction, by means of a little caustic potash. It was natural that analytical processes so ready should rapidly become popular. Their use, however, was not

so certain as was believed, and a source of error seemed to endanger the prospects of this valuable acquisition.

M. Béhier, at a recent meeting of the Société Médicale des Hôpitaux, brought forward so many examples of the uncertainty of these reagents, that if chemistry had not directly furnished us with the means of counteracting this source of error, these analytical processes should have been rejected from ordinary practice. In fact, M. Béhier has shown that the urine of a very great number of individuals affected with various diseases are coloured by potash, and even produce a precipitate with the potash-copper liquor.

The uncertainty of the reagent, in these cases, had been observed before, and M. Becquerel had pointed out its cause in his 'Traité de Chimie pathologique.' The following is, according to this writer, a mode of destroying the elements of the urine, which, as well as sugar, produce the coloration of the fluid, and of restoring to these reagents all their value:

"Take a given quantity of urine, one ounce; treat it with a given quantity of lead, say half a drachm; heat the mixture, when an abundant precipitate of a dirty-white colour is immediately produced; filter the fluid and treat it with sulphate of soda in excess. If, for example, we have used half a drachm of acetate of lead, we should add a drachm of sulphate of soda; heat the mixture again, sulphate of lead is thrown down; filter anew and we obtain a clear, transparent fluid, containing sugar when it is present, urea, and some trifling salts. Urine so treated reduces potash-copper reagents, and assumes a brown colour with potash, only when sugar is present. These two reagents are, therefore, in this manner rendered perfectly reliable.

"If the urine submitted to experiment contains albumen, the solid acetate of lead immediately coagulates this principle, at the same time that it carries down the other organic matters, and we are no longer embarrassed by it in looking for sugar.

"It hence results, that whenever we wish to discover the presence of sugar in any urine, whether albuminous or not, we possess in the potash-copper liquor and in potash, two excellent reagents; but on condition that we previously treat the urine with solid acetate of lead and sulphate of soda, the double reaction of which will remove all the acid or organic foreign matters which might reduce, decolorate, or turn green the potash-copper liquor, or produce a brown colour."

Art. 62.—*On Pertussal Glucosuria.* By Dr. Gibb.

(*Lancet*, Jan. 30, 1858.)

In the year 1855, the fact was first pointed out by Dr. Gibb, that the urine in almost every case of hooping-cough is saccharine, the quantity of sugar varying, generally but small, and sometimes a trace only being present. A considerable quantity he has, however, found on several occasions, the specific gravity being at the same time high, and in general characters the urine has been similar to that of diabetes. A case of pertussis, with urine in this last condition, was recently under Dr. Gibb's care, at the St. Pancras Royal Dispensary, in a

child of six years, who had reached the spasmodic stage of the complaint, without any complication, unless the glucosuria be considered as such. The remarkable feature of this case was the rapidity with which the quantity of sugar diminished under the usual plan of treatment recommended by Dr. Gibb in this disease—namely, nitric acid in large doses. The specific gravity of the urine became lower and lower, the quantity of sugar diminished, and, as a cure was established within three weeks, not a trace of it was to be found. It is an interesting fact, that nitric acid should so rapidly diminish the glucosuria. This may be effected in one of two ways—either by its curing the pertussis, and a condition with it, which must hereafter be looked upon as symptomatic of it; or else the assimilation of the acid prevents the formation of the sugar. To the last view Dr. Gibb inclines, but he says large doses only will produce this, as experience has proved in his hands. This condition of the urine in hooping-cough is well worthy of record.

ART. 63.—*On Sugar as an article of diet in Saccharine Diabetes.* By (1) Dr. WILLIAM BUDD; (2) Dr. WILLIAMS; (3) Dr. BURD, of Swansea; (4) Dr. CORFE; and (5) Dr. BENCE JONES.

(*British Med. Journal*, Nov. 14, and Dec. 19, 1857; Jan. 2, Feb. 6, and March 13, 1858; and *Medical Times and Gazette*, May 1, 1858.)

I. There are probably few (says Dr. Budd) whose attention has been much directed to the subject of diabetes, who have not had misgivings, at one time or another, as to whether the common method of treating this disease by restricting the patient to a purely nitrogenous diet, or, to speak more correctly, to a diet from which sugar and its equivalents are excluded, really fulfils the true indications of the case.

Among the many circumstances that might be referred to as suggesting such misgivings, there comes—

1. The strong and direct opposition in which this method very often stands to the natural cravings of the patient—cravings which, if not indulged, become, after a time, in many instances, so irresistible as to drive the subjects of them to fraud, in default of other means, in order to procure some portion of the proscribed articles.

It has even been laid down as essential to the success of this method, when conducted in hospital, that the patient should be kept in a room to himself, guarded by lock and key for that special purpose, so ineffectual have any less stringent measures been found to bar the diabetic man from the gratification of his desire for saccharine aliments.

The need of such precautions as these is in itself sufficient to raise serious doubts in the mind of any thoughtful practitioner, as to the soundness of the principle on which they are founded. For, although the appetites in disease are often perverted, and are rarely to be unreservedly trusted as guides to practice, yet they are often, as in health, exponents of true wants of the system. In some sense or other, they

are very real elements of the case, whatever it may be, and not seldom are much more intimate interpreters of its great cardinal relations than any evidence we may be able to draw from more recondite sources. These suggestions may require to be modified by the results of experience, or may even be superseded by a higher knowledge; but, in either case, we ought to be very sure of our facts before we venture to act upon them in contravention of strongly declared instincts. In diabetes it would be difficult to show in either of these quarters sufficient warrant for the little heed which is paid to the natural desires of the patient in the all-important matter of diet. We are certainly very far from having attained, on the one hand, to a perfect theory of the disease; and our experience as to diet, on the other, is too one-sided to enable us to found any certain conclusions upon it.

Another circumstance that tends very much to weaken faith in what may be called the orthodox plan of treatment is, that this plan is not only of little avail in most cases in long postponing the fatal event, but often signally fails in insuring for any length of time the specific object for which it is proposed—that, namely, of keeping down the quantity of sugar discharged with the urine.

3. M. Bernard's important discovery, that the liver forms sugar as readily from nitrogenous as from amylaceous compounds, seems to take from this plan the plea of resting upon a scientific basis.

I am aware of all that may be said in reply to these observations, and I also know that they are open to cavil in various ways; but they sufficiently show, notwithstanding, as it appears to me, that the true principles on which the dietetic treatment of diabetes should be conducted are still open to consideration. We shall see how far this view is borne out by evidence of another kind, to be presently adduced.

Many of the points here touched on are illustrated in a very striking way in a paper on *Diabetes* communicated to the French Academy of Sciences by Professor Andral, rather more than two years ago, and published soon afterwards in the 'Annales des Sciences Naturelles.' After remarking that a purely animal diet not only fails in a great number of cases permanently to reduce the amount of sugar discharged by the kidney, but that this amount may even go on steadily increasing, in spite of the entire exclusion of saccharine and amylaceous compounds from the food, M. Andral relates the following case in point:

"One of the most remarkable, and at the same time one of the most conclusive, of facts of this kind, because of the absolute strictness with which the regimen was carried out, is that of a woman who, in the intimate persuasion that an exclusive animal diet could alone cure her, had the courage to subject herself to it, during nearly two months, without deviating from it for a single day. During the whole of this time she ate nothing but roast or boiled meat, and drank nothing but water to which a little alcohol had been added. At the end of the two months, she was obliged to give up this regimen, which had become insupportable to her; and, besides, she was not better. At the moment of commencing this plan, her urine

yielded 27 *grammes* of sugar to the pint. During the early trial of it, the proportion of sugar fell by degrees to 20, 15, 12, and at last to as low as 10 *grammes* to the pint; then suddenly, and without the remotest ground for supposing that any breach of rule had occurred, the proportion of sugar voided began again to rise. We now saw it progressively mount from 10 to 15, 20, 30, 44, 49 *grammes* to the pint; and there was, moreover, no single day in which this principle was altogether absent. Further, what is particularly worthy of remark, is that, when we first began to mix eggs, milk, a small quantity of bread, and vegetables, with the meat, and to substitute wine and water for the alcohol and water, the sugar, contrary to all expectation, began to diminish anew, falling to 30, 26, and at length to 10 *grammes* to the pint. Then again, after the lapse of some days, the regimen remaining unchanged, the sugar rose once more, until, at the end of three weeks from the first adoption of this mixed diet, the urine contained 54 *grammes* to the pint."

M. Andral adds, that this is far from being the only instance in which he has seen a large amount of sugar continue to be discharged in the urine in this disease, in spite of a purely animal diet; and he cites, among others, the extreme case of a diabetic patient, "who lived entirely on flesh, and whose urine contained, notwithstanding, the enormous quantity of 82 *grammes* of sugar to the pint; and as this man passed eight pints of urine every twenty-four hours, it follows that he expelled from his system, and consequently produced in the same period of time, as much as 656 *grammes* (or more than 20 ounces) of sugar."

In the case of which it is the principal purpose of this paper to give some account, the same general fact was observed. The amount of sugar voided went on largely and steadily increasing, in spite of the rigid observance of a diet from which sugar and amylaceous compounds were excluded. But this case exhibited, in addition, the much more remarkable spectacle of a considerable and permanent reduction in this amount occurring concurrently with the recovery of the patient from a state of wasting and extreme weakness to one of good condition and comparative health, on substituting for this diet a scheme which not only included a large proportion of vegetable food, but *more than half a pound daily of sugar in substance.*

Case.—The subject of this case, Joseph Snailum by name, an agricultural labourer, 18 years old, was admitted on March 19th, 1857, into Ward 6 of the Bristol Royal Infirmary, where he still remains under observation. At that time, he had already been fifteen months ill. As in most cases of the kind, his malady had stolen insensibly upon him. Frequent calls to make water, by night and day; an unnatural thirst, together with loss of flesh and gradually increasing weakness, were the first circumstances that excited his attention. He had been unable to work almost from the beginning. Meanwhile, these complaints had gone on gradually increasing. For some time before he fell ill, he had been working in wet and marshy ground; but, apart from this, he could assign no distinct cause for his failing health. His immediate relatives appear to have been healthy people.

On admission, his state was very characteristic. A peculiarly dry and harsh skin, a brown and dry tongue, ardent thirst, and a voracious appetite,

were the leading symptoms. The pulse was only 68 in the minute. He was much reduced in flesh and strength. For the first week, the quantity of urine passed varied from nine to twelve and a half pints; its specific gravity, from 1039 to 1042. The presence of sugar in the urine was ascertained by the copper test, and by the extraction of sugar in bulk from the secretion. Within a few days after his admission, he was put on a diet consisting entirely of meat, eggs, a carefully prepared diabetic bread, a small quantity of butter, and a few ounces of wine. Under this regimen, contrarily to what usually happens, the diabetic symptoms began to grow worse almost from the first. The quantity of urine passed rose, in the course of a week, from nine to seventeen pints, its specific gravity remaining much the same. The patient's thirst increased, and he became daily thinner and weaker. At the end of that time, an attack of diarrhœa occurred, which lasted, with more or less severity, very nearly ten days. During that interval, he took very little food, and the precise amount of urine passed could not be estimated. When the bowels had become settled, he was found to be voiding from seven to ten pints of urine *per diem*, of specific gravity ranging from 1036 to 1044.

On March 31st, the stomach rebelled so much against the diabetic bread, that six ounces of common bread were allowed in place of it; and these six ounces were soon afterwards raised to sixteen. His health now began to improve somewhat, and he gained a little in flesh and strength. The diabetic symptoms proper remained much as before.

This improvement, however, was not of long continuance. In the beginning of May, he had grown so weak as to be obliged to keep his bed, and I had become very anxious about him. His tongue was very dry and brown; his pulse had become frequent; and he was much harassed by cough and pain in the chest. He seemed, in fact, to be rapidly entering upon the downward course which leads to the fatal event so common in such cases.

Many considerations, which I have not now time to detail, but some of which have already been hinted at, had long made me desirous of trying what would be the effect of freely giving sugar in such circumstances.* I was turning the matter in my mind, when I accidentally saw it stated in the 'Gazette Médicale that M. Pierre had already tried this measure in one case with very marked success. I, therefore, on May 22d, entirely reversed my plan of treatment, and ordered the patient to be put on a varied and generous diet, with the addition of eight ounces of sugar candy and four ounces of treacle daily. This change had very little effect at first, either on the quantity of urine passed or on its specific gravity. It is worthy of remark, however, that what little there was was in both respects on the side of diminution. But the effect on the general health was marked and immediate. The new articles of diet were taken with great relish, and the patient improved in health and strength from day to day. What is especially worthy of attention is, that, as he became stronger, the diabetic symptoms also gradually lessened—to such a point, indeed, that on July 22d, exactly two months after the adoption of the new scheme, only three pints of urine, of specific gravity 1032, were passed in the twenty-four hours; and yet, at this very time, the patient was taking, in addition to much vegetable food, as much *as eight ounces of sugar and six of honey daily;* the honey having been substituted, at his own desire, for the treacle previously given. Since that time, the quantity of urine passed has somewhat risen, its present daily average being

* This idea was first suggested to me by my colleague, Mr. Prichard, on the simple ground of supplying to the system the particular article which is running to waste, and the loss of which appears to be the principal cause of the damage sustained by the constitution as the disease advances.

from four to five pints, of specific gravity varying from 1032 to 1034. In other respects, his state is very satisfactory. He is ruddy, looks in very good condition, and declares himself to be strong and well. His tongue is moist; he no longer suffers from thirst; and his skin, from being dry and harsh in the extreme, has become soft and natural. He has increased in weight from 107 lbs., which was what he weighed shortly before beginning the sugar treatment, to 126½ lbs.

The patient continued steadily to improve under the same plan, from the date of my former communication up to the 20th October last. During this period, only one circumstance occurred to call for remark. In the latter part of September and beginning of October, he was taking eight ounces of sugar candy and six ounces of honey daily. On October 6th, the honey was left off at his own desire, he having, as he said, "become tired of it." The week before it was given up, he gained one pound in weight. In the fortnight that followed, he gained four pounds and three quarters. Whether this increase in the rate of improvement was due or not to giving up the honey, I will not pretend to determine. The register which was kept of the state of the urine at that time has unfortunately been mislaid; but I am enabled to say, from memory, that neither the specific gravity of this fluid, nor the quantity passed, were sensibly affected by the withdrawal of this article of diet.

On October 20th, I allowed the patient to go home for a few days. He was at that time better than he had ever been since the commencement of his illness. He looked strong and well, and weighed 130¼ lbs., being more than twenty pounds heavier than when he commenced the new treatment. The average daily urine was five pints, of specific gravity, ranging from 1031 to 1034.

It may serve as some indication of the amount of improvement that had occurred under the sugar plan, to mention that, finding no conveyance at hand, he walked the whole way to his father's house on Oldland Common, a distance of nine miles from the Infirmary. This journey, he assured me, he accomplished without the slightest fatigue. While at home, he took his meals with the rest, and his fare was the common fare of a farm labourer. All special treatment was for the time left off. Unfortunately, he took advantage of his freedom from restraint to drink freely. During his absence, he never took less than three quarts of cider daily, and once, by his own confession, he was "the worse for liquor." Although he was only three days away, it was obvious, on his return, that he was not nearly so well. His skin had become harsh; his tongue was dry and brown; he was very thirsty; had lost his appetite, and had grown rapidly weak. The day after his return, he passed more than eight pints of urine, of specific gravity 1030. In the week that began with his three days of absence, he lost more than five pounds in weight. In the week following, his weight fell still further from 125 lbs. to 120 lbs. During this interval he never passed less than eight pints of urine, and more commonly ten pints, daily. On one day the quantity rose to eleven pints. In specific gravity, it ranged from 1035 to 1038.

On his readmission, he was placed, as to common articles, on the same diet as before—a diet which included a liberal allowance of bread and butter, meat and eggs, and some malt liquor. In the way of sugar, he was now confined to cane-sugar, of which I gave him eight ounces daily. Finding, at the end of ten days, that he did not improve, this quantity was increased to twelve, and soon after to sixteen ounces, daily.

At the end of a fortnight, he began again to mend. His tongue became

moist, his thirst abated, and he began to recover his lost flesh. On December 8th, he weighed 126 lbs. On the same day he passed eight and a half pints of urine, of specific gravity 1034.

On January 8th, he complained of having more sugar than he liked, and four ounces were accordingly struck off at his own request, and six other ounces on the 12th of the same month, leaving only six ounces for his daily use. This reduction in the quantity of sugar seemed to have a beneficial effect; for, on the week following, his weight had risen to 127½ lbs., and his urine had fallen to six pints and a half, of specific gravity 1036°.

Since this last date, with the exception of slight fluctuations in weight from week to week, his condition has undergone little variation.

From January 10th to the present date, the daily average urine has been five pints and a half, the extremes during the same period being four pints and a quarter on the one hand, and six pints and a half on the other. The average specific gravity of the urine during the same period has been 1034, the extremes being 1031 and 1040. The last figure was only observed on a single occasion. I may add, that the specific gravity has always been taken on the mixed urine of the twenty-four hours.

During the greater part of the time to which these notes refer, the patient's dietary has consisted of the following articles: sixteen ounces of bread, three ounces of butter, three eggs, three chops, and one pint of beer, besides the sugar, which has been given in varying quantity, as already indicated. I have considered it as an essential part of the treatment that the food should be nutritious and substantial. It is quite conceivable that, under opposite conditions, the result might be widely different.

It will be seen from the memoranda given above, that, although the patient has not quite regained the point at which he stood before the relapse that occurred during his temporary absence from hospital, the resumption of the sugar treatment has been followed by exactly the same result as before; *i.e.*, an increase of weight, great improvement in general health, and a very considerable diminution in the quantity and specific gravity of the urine, and by implication, therefore, in the quantity of sugar excreted by the kidney. The general state of the patient is now very satisfactory. His appetite is good; he does not suffer from thirst; his muscular power is considerable; his complexion is florid, and his look altogether that of a healthy young man. He is still diabetic, but much less so than he was: and the system seems now to be protected from the waste and deterioration which the disease was so rapidly producing before he began to make sugar a principal article of diet.

II. Encouraged by Dr. Budd's report of the previous case, Dr. Williams made use of sugar as a remedy in two cases of diabetes, in which the symptoms were quiescent and stationary, and in which a non-saccharine dietary had been vigorously adhered to previously. The patients were intelligent gentlemen, aged respectively 34 and 38, thin, hard, wiry-looking persons, who had suffered no loss of flesh and weight during the previous six months. In both, also, the disease had been in existence for about two years. In Case A the urine had scarcely ever, for six months previously, varied from 1040 in specific gravity, and three pints in quantity in the twenty-four hours; that in Case B the conditions were very nearly the same, although not quite so unfluctuating.

In twenty-four hours after the change of diet in Case A, the urine increased from three pints to four pints and a half, and from 1040 in

specific gravity to 1042. In forty-eight hours under the same diet the quantity rose to five pints and some ounces, and the specific gravity to 1050. In another twenty-four hours, being the third day from the commencement of the experiment, the volume rose to six pints, and the specific gravity to 1056.

Case B exhibited almost precisely the same change. The urine increased in quantity and density in the same time in an equally remarkable degree.

Neither of the patients could be prevailed upon to continue the experiments any longer. Both grew rapidly worse in every respect, and became rapidly alarmed. The thirst grew more and more unquenchable. The skin became drier and drier; the bowels were every day more constipated; the mind passed from a calm state into a condition of rapidly increasing excitement, in one bordering almost on mania. The symptoms in every sense exchanged the passive for the active condition. Both patients regained their former tranquil feelings by the use of opium for three or four nights; and it was only slowly that the urine returned to its former physical properties. These two gentlemen emerged from this ordeal with the deeply-rooted convictions that the old system was the best; that practice is above and beyond theory; that the rule of contrarieties is preferable to that resting its airy claims on fancied similitudes.

III. *Dr. Burd's case.*

M. M—, æt. 30, married, came under my care in the Salop Infirmary, on November 14th, 1857, suffering from diabetes mellitus in an advanced stage. She is one of a healthy family, and resides in a healthy village in North Wales, where she has been under regular medical attendance for some months. She is extremely emaciated, and in a very weak and depressed state both of mind and body. She has had nine children, and says that she was quite well up to the period of her last confinement, ten months ago, at which she had considerable hæmorrhage, causing great weakness and prostration, which rendered her unable to nurse her child. She has menstruated twice since her confinement, but not during the last seven months, from which period she dates her illness, and from which she has been known to be suffering from diabetes, and has been treated accordingly. The disease has, however, steadily progressed in spite of remedies. On her admission, she weighed seventy-nine pounds, and was passing six quarts of urine in twenty-four hours, of specific gravity 1036. I ordered her to take two pints of milk and two pints of porter daily, with sick diet and no medicine. This plan she continued for a week, seemingly somewhat improved by the liberality of her diet; and on November 22d (a week after her admission), I determined to try the effects of a saccharine treatment. She was ordered to go on with the sick-diet, milk, and porter, and to take half a pound of honey and half a pound of white sugar daily. She rather liked the idea of this novel treatment, and commenced it willingly.

From the very first commencement, however, she became daily worse in every way; the pulse, before very quick, became quicker; the thirst more urgent; the tongue more dry; the urine increased both in quantity and in specific gravity. Sickness came on; and the bowels became very relaxed. She lost all desire for food; had restless, bad nights; and her debility became extreme—so much so, that her evacuations were passed involuntarily; and I entertained great fears that she would rapidly sink. These untoward symptoms

were met, as they arose, by appropriate remedies, but in vain; and, at the end of a week, it was found necessary to stop the supply of sugar. The quantity of the urine had during the week risen from six quarts *per diem* to twelve; the diarrhœa at the same time being excessive. Under the free use of opium and stimulants (the sugar being omitted) she rapidly improved, and in the course of another week was able again to get up, and to walk about her ward, the urine having again reduced to six quarts.

IV. *Dr. Corfe's case.*

This case is that of a man, æt. 40, with unequivocal solidification in the apex of the right lung, who, for two months, had been passing large quantities of saccharine urine of a sp. gr. ranging from 1046 to 1052. A non-saccharine diet was strictly enjoined, but as every day the symptoms assumed a more dismal character, the whole line of treatment was changed. He was now directed to take, Zinci Sulph., gr. ij; Cinchoninæ Sulph., gr. i; Extracti Lupuli, gr. ii, in form of pill, with each meal, in lieu of the creosote mixture, and to continue the cod oil. He was desired to use the following articles of diet: fat mutton and beef, and the same meats in form of soups; fresh white fish, boiled; oysters, poultry, game, tripe, and any one of the following vegetables daily—parsnips, turnips, carrots, spinach, greens, brocoli, endive, lettuce, celery, and to abstain from bread and all farinaceous food and potatoes. His drink was directed to consist of a cup of coffee, with half an ounce of candy sugar, in the morning; a table-spoonful of rum in a glass of water, with the same quantity of sugar candy and five grains of carbonate of ammonia, at luncheon; and two glasses of claret at dinner. In the evening he was desired to take one ounce of honey on bread, in lieu of butter, and to sup on boiled milk, with an egg, &c.

After having continued this line of treatment from December 17th to the 30th, the following results were obtained: the urine increased from four to eight pints in twenty-four hours, the sp. gr. was 1050; it gave proof of containing, by polarised light, 112 grains in 1000 pints, or rather more than two ounces in each pint, and yet he had not lost in weight more than one pound. It should be here remarked, that he frankly acknowledged that he had not followed the directions of treatment in so strict a manner as he could have wished; for although he felt stronger and more lively in mind, he had been to several festive parties, and had eaten freely of potatoes and bread on several occasions, and had drank beer or bottled stout. But after being reprimanded severely for his indiscretion, he faithfully adhered to the prescribed form of dietary. The pills were now increased one grain of each of the sulphates in strength, and on the 17th January the urine had a sp. gr. of 1038, containing 83 grains in 1000 of sugar, that is, a diminution of more than a quarter of an ounce in each pint of fluid, and for eight days prior to this report the quantity never exceeded four pints in twenty-four hours. I now begged him to abstain wholly from all farinaceous food, including bread, until the next report, which has been forwarded to me this day, January 29th, and which I transcribe.

"My dear Sir,—Enclosed you will receive my report, which I think will speak for itself. I can now reverse my tale, and say, 'the bones which were once seen are now hidden from sight;' I am, of course, with this increase of flesh, much stronger. I feel some little difficulty in walking upstairs, but not to the extent I formerly did by any means; I get a free perspiration, my appetite is good, and the cramps are quite gone. When I meet any one whom I have not seen for eight or nine days, they want to know if my face is not swelled; my clothes, which hung about me as though not belonging to me, I am obliged to alter in the buttons. I have found a good substitute for bread

in parsnips. The fat ham had the desired effect on my bowels; of course it checked my progress in weight, which has gradually risen thus:

	Weight.	Urine.	Fluids taken.
	lbs.	Pints.	Pints.
1858.—Jan. 15 . .	120	5	5
„ 18 . .	121	4½	4½
„ 21 . .	124	3	3
„ 25 . .	129½	2½	3
„ 28 . .	132	3¾	3½

"I can now attend to business comfortably; I can walk four miles an hour well. Perspired freely last night in bed, and exertion to-day induces a moisture also."

The analysis of the urine this day confirms the foregoing remarks on the positive improvement in health. Instead of presenting its usual amber-coloured clear character, it is now muddy, and deposits some lithates. The muddiness is removed by heat. It is acid, and of sp. gr. 1032, and is found to contain only twenty grains per 1000 of sugar; indeed, the indications now are so faint, Mr. Heisch observes, that it is not easy to define the precise quantity, as before, by means of polarised light.

V. *Dr. Bence Jones's cases.*

Case 1.—E. C., æt. 12, was admitted in 1854 into St. George's Hospital. She was said to have been ill six weeks, with pains in the bowels, wasting, thirst, excess of urine, sp. gr. 1042, and ravenous appetite; drinking quarts of water, and eating as much bread as she could get.

After three days of animal diet *only*, she passed 3 pints of urine, sp. gr. 1032, containing some sugar. In six weeks' time the urine was reduced to 2½ pints, sp. gr. 1012, and containing no sugar. She had not gained in weight above one pound.

A very little bread was then given. The next day the water was 3 pints, sp. gr. 1015, and contained sugar. The bread was continued the next day, and then there was sugar. The following day no bread was taken, and there was no sugar. For three days bread was again taken, and sugar appeared; the following three days no bread was allowed, and the sugar disappeared. Again the bread was given in small quantity and the sugar reappeared, and when omitted disappeared. The bread was then finally omitted. Two pints of milk extra were given, and no sugar appeared the following day; the urine had a sp. gr. 1012, with no sugar. Potatoes were then given, and the next day the sp. gr. was 1019, and much sugar was present. The potatoes were stopped, and a pint and a half of porter was given, and no sugar appeared. This was continued for ten days, and still no sugar was present in the urine.

Two ounces of lump sugar were then given. The urine had a sp. gr. of 1012. No sugar appeared in the urine. This was continued four days, and no sugar occurring, a small quantity of bread was also given. The sp. gr. rose from 1009 to 1022, and much sugar appeared. The bread was omitted, and an ounce of honey was given daily for a week, no sugar appearing; two ounces of honey were given, and no sugar appearing some bread was given, the sp. gr. rose from 1010 to 1030, and much sugar was present. The

honey was continued without bread, and some sugar was found in the urine.

As it was desirable to determine more accurately the amount of sugar produced in the urine by the bread, I examined the water by means of Soleil's saccharometer; 1st, when some bread was taken; 2dly, when no bread was taken; 3dly, when the third of a pound of lump sugar was taken and no bread; 4thly, when the sixth of a pound was taken. Then when the sugar was omitted. After this porter was given, and the effect on the urine determined. Lastly, a minimum quantity of bread was given. The following table gives the results of the experiments.

Diet.	Sp. gr. of urine.	Amount of sugar in urine.
June 30, animal diet only . .	1014	None.
July 1, „ . .	—	None.
„ 2, animal, with bread . .	1025	19 grs. to each oz.
„ 3, animal only . . .	1003	No trace.
„ 4, „ . . .	1007	„
„ 5, animal, and $\frac{1}{3}$lb. of sugar	1027	15 grs. to each oz.
„ 6, „ $\frac{1}{6}$lb. „ .	1016	4 grs.
„ 7, animal only . . .	1020	No trace.
„ 8, „ . . .	1018	„
„ 9, animal, and pint of porter	1015	„
„ 10, „ „ .	1018	„
„ 11, „ 1½ pt. of porter	1020	„
„ 12, „ „ .	1022	„
„ 13, „ „ .	1015	„
„ 16, „ with 4 oz. bread .	1022	Trace of sugar.
„ 17, „ 2 oz. „ .	1025	Trace.
„ 18, „ „ „ .	1016	„
„ 19, animal only . . .	1015	No trace.

Unfortunately, the record of the quantity of urine passed daily has been mislaid; on this account I was anxious to repeat the experiments with sugar on another diabetic patient, and for this purpose Dr. Page transferred to me a patient who was under his care in St. George's Hospital.

Case 2.—A. T. was admitted into St. George's Hospital, Jan. 20, 1858, æt. 43, married. She had been for two years under treatment at a dispensary. She was much emaciated, with pale, sallow face, and sunken eyes. The catamenia had been absent for fifteen months. She complained of excessive thirst and unappeasable appetite. She stated that her weight varied between 75 and 80 lbs., and that the urine had varied from 5 to 8 quarts in twenty-four hours. With a restricted, but not absolute animal diet, and 3 grains of opium, the urine varied between 4½ and 7½ pints. Sp. gr. 1030 to 1045.

On the 23d of March she came under my care; the diet then was between 5 and 8 ounces of bread, 2 mutton chops, 2 eggs, 2 pints of milk daily, and 2 grains of opium, with some chalk mixture for diarrhœa, which began the previous day. She weighed 5 st. 6 lbs.; the quantity of urine was 5 pints; sp. gr. 1034. She drank only 3 pints of fluid, she said, and the

quantity of sugar passed in the urine was 31 grs. to the ounce, or 3100 grs. in the 5 pints.

The 24th, the same diet and pill. There was no diarrhœa. She weighed 5 st. 5 lbs.; she passed 5 pints urine; sp. gr. 1042; she drank 3 pints. The sugar was 35 grs. to the ounce, or 3500 grs. in 5 pints.

The following day, feeling pretty well, same diet and medicine; weight, 5 st. 6 lbs.; urine, 5 pints, 1042; 3 pints of fluid were taken in twenty-four hours; the amount of sugar was 36 grs. to the ounce, or 3600 grs. in twenty-four hours.

The 26th, everything the same, except that 8 ozs. of lump sugar were taken. She weighed 5 st. 6 lbs. The urine was 5½ pints; sp. gr. 1042; she drank 4 pints; the sugar was 39 grs. to the ounce, or 4290 grs. in twenty-four hours.

27th.—The same as yesterday, but diarrhœa commencing, chalk mixture was given. She weighed 5 st. 4 lbs.; the quantity of urine was 6 pints; sp. gr. 1042; she drank 3½ pints of fluid, and had eaten her usual quantity of bread, about 7 ozs.; the amount of sugar was 40 grs. to each ounce, or in twenty-four hours 4800 grs.

28th.—Urgent diarrhœa; bowels acted seven or eight times. Violent hysterical fit. Æther mixture and opium injection were given. Her weight was 5 st. 4 lbs. The quantity of urine, 5 pints; sp. gr. 1042, containing 38 grs. of sugar to each ounce, or 3800 grs. in the twenty-four hours. She drank only 3 pints. The sugar was omitted.

29th.—The diarrhœa was stopped. The weight was 5 st. 5½ lbs.; urine, 5½ pints, 1042 sp. gr., containing 38 grs. to the ounce; or 4130 grs. in twenty-four hours.

30th.—No diarrhœa; no sugar; weight, 5 st. 6 lbs.; urine, 5 pints; sp. gr. 1042; contained 36 grs. to the ounce, or in twenty-four hours 3600 grs.

31st.—Still no sugar; weight 5 st. 6½ lbs.; urine, 5 pints; sp. gr. 1043; contained 36 grs. to the ounce, or 3600 grs. in twenty-four hours.

April 1st.—Bowels confined; 8 ounces of sugar were taken; the weight was 5st. 5½lbs.; the quantity of urine was 7 pints; sp. gr. 1040; containing 37 grs. per ounce, or 5180 grs. in the twenty-four hours.

2d.—Feels very low and weak; no sugar was taken; the weight was 5st. 5lbs.; urine, 5 pints; sp. gr. 1041; amount of sugar, 36 grs. to the ounce, or 3600 grs. in twenty-four hours.

3d.—Five pints; 1040; sugar, 35 grs.; or 3500 grs. in twenty-four hours. She complained of the sugar, and the experiments were discontinued. The following table brings the effect of the sugar clearly to view:

	Weight.	Quantity of water.	Sp. gr.	Sugar in 24 hours.	Fluids taken.	Bread.	Sugar.
	st. lbs.	Pints.		Grains.	Pints.	oz.	
1st day . .	5 6	5	1034	3100	3	...	None.
2d „ . .	5 5	5	1042	3500	3	...	„
3d „ . .	5 6	5	1042	3600	3	...	„
4th „ . .	5 6	5½	1042	4290	4	...	8 oz.
5th „ . .	5 4	6	1042	4800	3½	7	8 „
6th „ violent diarrhœa	5 4	5	1042	3800	3	7½	8 „
7th „ . .	5 5½	5½	1042	4130	3	5	8 „
8th „ . .	5 6	5	1042	3600	3	7	8 „
9th „ . .	5 6½	5	1043	3600	3	7	8 „
10th „ . .	5 5½	7	1040	5180	3	7	8 „
11th „ . .	5 5	5	1041	3600	3	8¾	None.
12th „ . .	5 5	5	1040	3500	3	7	„

So that the amount of sugar in the urine, and the quantity of urine, were increased on the days when sugar was eaten, excepting only on that day when violent diarrhœa existed.

In order to determine in which stage of diabetes this patient was, she was persuaded to give up all vegetable food of every kind, and all bread. Three eggs were taken in addition to the diet of meat and eggs which she was eating.

At the end of the

1st day of absolute animal diet she weighed 5st. 5lbs. The urine was 4 pints, sp. gr. 1042; it contained 31 grs. of sugar to each ounce. She drank 3 pints.

2d day of absolute animal diet she weighed 5st. 4lbs. The urine was 4 pints, sp. gr. 1041; it contained 28 grs. of sugar to each ounce.

3d day, animal diet; weight 5st. 4lbs. The urine was 4 pints, sp. gr. 1040; the sugar was 27 grains to the ounce.

The following day 10 ounces of bread were eaten, and the three eggs were omitted; the weight was 5st. 4½lbs. Four pints and a half of urine were passed, sp. gr. 1040; the sugar was 34 grs. to each ounce.

The following day with the same bread; urine, 4 pints; sp. gr. 1041; sugar, 35 grs.

The following table will show the effect of an absolute animal diet, and of bread and meat:

	Weight.	Quantity of water.	Sp. gr.	Sugar in 24 hours.	Fluid taken.	Bread.
	st. lbs.	Pints.		Grains.	Pints.	
1st day . . .	5 5	4	1042	2480	3	None.
2d „ . . .	5 4	4	1041	2240	3	„
3d „ . . .	5 4	4	1040	2160	3	„
4th „ . . .	5 4½	4½	1040	3060	3	10 oz.
5th „ . . .	5 4½	4	1041	2800	3	10 „

Each day was reckoned from one p.m., when the patient was seen; so that bread was taken on the morning of the first day, and by the results obtained on the fourth and fifth days, when bread was eaten, it is probable that the amount of sugar found in the urine of the first day was increased in consequence of the early meal not being meat alone. The wrong conclusions that might be drawn from the specific gravity of the urine alone is well shown in these tables, thus:

	Sp. gr.	Sugar in 24 hours.
		Grains.
When animal diet alone was taken . . .	1040	2160
With animal diet, and bread 10 oz. . . .	1040	3060
With animal diet, bread 7 oz., sugar 8 oz. . .	1040	5180

I have already said that it would be sufficient answer to Dr. Budd's cases, that I have seen other patients on the same treatment as regards diet get worse instead of better; the analyses of the urine in the two cases I have here given, the one in the second stage, and the other in the third stage of diabetes, will show what a diet containing sugar and bread does effect in increasing the amount of sugar in the urine; and from all I have seen of the disease, it is better practice to follow the indication of lessening the amount of sugar in the urine, than to endeavour to cure the disease, as I have known a homœopath try to do, by a specific of sugar and starch.

Art. 64.—*On "Surgical Diabetes."*

By Mr. Erichsen, Surgeon to University College Hospital, &c.

(*Dublin Hospital Gazette*, Jan. 15, 1858.)

Mr. Erichsen stated recently to his class at University College Hospital that, in reading over some of the curious and startling experiments of M. Claude Bernard, where that distinguished physiologist was able to produce artificial diabetes in large dogs and other animals by imitating concussion of the brain, by striking the animals with a hammer! he was led to examine the urine of some of the patients brought to University College Hospital suffering under "concussion," and he was astonished to discover large quantities of sugar in the urine! Whether this arises from the delicate parts about the fourth ventricle giving way, and containing clots of blood, or general derangement or "contusion" of the brain substance, Mr. Erichsen is not yet in a position to state. In one case of concussion recently under Mr. Erichsen's care, a large quantity of cerebro-spinal fluid was observed trickling away, a very formidable symptom in general; yet the case did very well. In another case, a man fell a distance of fourteen feet, coming down on the back of his head; he was severely bruised, and was taken up stunned, suffering from concussion. When admitted to hospital, it was noted that the sensibility of his limbs was good, but all power of movement was abolished. His urine was examined about this time by Dr. Harley, and found to contain sugar in abundance,

and this ingredient seemed to increase every day till indistinct signs of mobility or power of motion returned to the limbs, when it began gradually to diminish, according as the paralysis of motion subsided. It was curious to observe that sensibility of the limbs was good, even at a time that motion was abolished.

ART. 65.—*On the diagnosis, pathology, and treatment of Moveable Kidneys.* By Dr. HARE, Assistant Physician to University College Hospital.

(*Medical Times and Gazette*, Jan. 2, 16, and 30, 1858.)

After relating four interesting cases of moveable kidneys, Dr. Hare proceeds to make the following general remarks:

"*Diagnosis.*—In very stout individuals, or when from any cause the parietes are particularly rigid and unyielding, the detection of a moveable condition of the kidneys, even when present, may be very difficult or even impossible; but under ordinary circumstances such is by no means the case. Nor when the presence of a moveable tumour, such as I have described, has been determined, is the diagnosis of its true nature a matter of great difficulty. The physical signs are of themselves almost sufficient to enable one to come to a positive conclusion on the subject; the chief errors having occurred when practitioners have been unaware of the occasional occurrence of this moveable condition of the kidneys. Under such circumstances, the kidney has been mistaken for the spleen, 'an abscess,' some enlargement of the liver, or for a tumour of a malignant character; while I have long felt assured that some of the so-called 'phantom' and 'anomalous' tumours, tumours of which descriptions have been published, have in reality been kidneys presenting this unusual mobility.

"Where the right kidney is enlarged and fixed in position, it is now and then very difficult to make an accurate diagnosis between it and some form of enlargement or tumour of the liver, but this organ never presents any mobility, such as does the moveable kidney. In several instances the condition of the right renal organ has been associated with enlargement of the liver, but the diagnosis is not then necessarily rendered more difficult, as the margin of the liver can generally be made out by palpation and percussion, and the kidney is found to slip readily beneath it. An enlarged gall-bladder is sometimes very moveable, but the position which it occupies is different from that of the organ under consideration, being usually more oblique towards the left iliac-fossa; the lower end of the enlarged gall-bladder is also more globular; it feels less hard under pressure, and sometimes fluctuation in it can be detected; besides, though the gall-bladder may be very moveable, it is the distal end only of it which is so, the other being attached to the liver. On the left side the spleen is the organ most likely to be confounded with the kidney; but if it reached as low as this organ it would be much larger than the kidney is, and when enlarged it is never, as far as I know, so mobile as is the so-called moveable kidney; the spleen is also more superficial, and usually so much so as to be close to the parietes and dull on percussion, while

the kidney (of its normal size) is covered more or less by intestine. It must be remembered, however, that in exceptional cases a coil of intestine may get between the abdominal parietes and the enlarged spleen, and so give rise to a resonant stroke-sound over that organ; while, on the other hand, if the moveable kidney be detruded downwards, and kept in front, it gives rise, *pro tempore* at least, to dulness on percussion. An ovarian tumour differs in its attachments; it is not so limited to one side of the abdomen, if, at the same time, it extends high up towards either hypochondrium; in other words, if an ovarian tumour extend high into the abdomen, it has always a considerable transverse diameter. A collection of fæces in the colon is different in form and feel, nor will it slip into the hypochondriac region like the kidney. A cancerous or tuberculous mass growing from the omentum or mesentery, or a floating tumour in the peritonæum, is most likely to be confounded with a moveable kidney; but the loose tumours are extremely rare of a kidney size, and a careful attention to the shape of the moveable kidney, and the extreme smoothness of the surface, will generally sufficiently solve the diagnosis, while the detection of the hilus of the kidney, which in favorable cases is quite possible, will place the matter beyond a doubt; it will be remembered, also, that as the kidney is detruded downwards, it assumes more and more of an oblique direction, the hilus looking more upwards, owing to the peculiar attachment of the organ. The absence of the kidney in its normal position, and the consequent depression there (when this occurs), are likewise important guides in forming an opinion; besides which, the absence of any general cachexia, or of the symptoms of other disease, and the fact, sometimes ascertained, that the tumour since its first discovery has remained perfectly stationary as regards size, &c., will give some help in coming to a correct diagnosis.

"*Pathology, causes, &c.*—This condition of the kidneys may be either congenital or acquired. Where these organs are situated permanently low down in the abdomen an abnormal origin of the renal arteries has been almost always met with; but in the cases under consideration, though the vessels have been found lengthened, their origin has been at the usual position, and I do not think that some lengthening of the vessels is a necessary proof of the mobile condition of the kidneys having been congenital. It is well known how readily the vessels of the ovaries, for example, accommodate themselves to the altered position of these organs when, from adhesion to a pelvic tumour, they are removed perhaps to a distance of many inches from their natural position. The condition is sometimes associated with an enlargement of the liver, which may tend to push down the kidney. A large calculus in the pelvis of the organ will sometimes drag down the kidney, but no condition of this kind is at all essential to the detrusion of the organ, for in almost every instance in which a post-mortem examination of such cases (the patients dying of other disease) has been made, the kidneys have been healthy, as stated by Oppolzer, Rayer, &c. The latter author mentions that the moveable condition of the kidneys is sometimes coexistent with a displacement of the intestine or of the uterus (though it does not seem clear how

the latter cause could produce such an effect), and that 'frequent pregnancies, efforts to carry or lift heavy weights, have appeared in some cases to be the cause of this displacement of the right kidney, which in other instances has been inexplicable.' Emaciation in those who have been stout appears to be one cause of the mobility of the kidneys. Oppolzer observed that while the organs themselves were healthy there was a deficiency in the cushion of fat, and an extension of the renal vessels; while Mr. Adams, with reference to the case he records (*loco cit.*) remarks,—'The only peculiarity remarkable was that the kidney appeared bound down in its situation more loosely than usual, and the old lady, from having been very fat, had become somewhat thinner, and her integument appeared very lax throughout.' Rayer mentions a case in which the peritonæum, instead of passing over the anterior surface of the kidney, enveloped it at every part except at the hilus, and thus formed for it a true mesentery nearly two inches in length; and another example is alluded to by Dr. Priestley as having been observed by Dr. Simpson, in which 'the peritonæum was found reflected over the posterior surface of the kidney, giving it thus a mesentery, and allowing it very considerable motion on the right side of the abdomen.'

"*Treatment.*—Owing to mistakes in the diagnosis of affections of this kind, patients have been subjected to courses of treatment not only useless, but painful and injurious, while they have also been rendered very anxious by not finding the 'tumour' disappear. Besides various other kinds of 'active treatment' submitted to, one patient came under Rayer's care, with the abdomen, especially the right flank, covered with leech-bites, and another had had a moxa applied. Patients suffering from this affection should avoid long-continued standing, or much exercise, especially of a severe character, such as running or jumping, riding on horseback, or travelling over rough roads. Straining at stool should also be prevented as much as possible; the bowels should be regulated, and any obvious indication for the improvement of the general health should be followed out. In two or three of the cases I have seen the patients have been somewhat anæmic, and a course of steel medicines has appeared not only to have improved the general condition, but to have aided in relieving the dragging pains of which they complained. Warm baths often give great temporary, if not permanent relief, and a large belladonna plaster spread on leather has proved useful; but this might perhaps be partly due to the support it yielded. But the greatest and most efficient relief is obtained from the use of an elastic abdominal support, provided this be made so as to fit thoroughly well; if not, it sometimes rather aggravates than relieves the pain: and one difficulty lies in preventing its slipping too high up on the abdomen, when it acts somewhat like a belt round the waist, and may even tend to detrude the kidney downwards. Dr. Gueneau de Mussy has informed me that he ordered the lady who was under his care with this affection to have the bowels well opened every evening, and then in the morning *before rising* (while the kidney, therefore, is in its most normal position) to slip over the lower extremities, and so move it upwards till it encircled the abdomen, an elastic circular bandage or

support; applying underneath it, opposite the right antero-lumbar region, a hair pad. The lady soon became accustomed to the pressure, and is now almost free from pain, although she has resumed her former mode of living, taking considerable exercise, and mixing much in society. I think these suggestions as to the time and mode of applying the support of much practical importance."

(F) CONCERNING THE CUTANEOUS SYSTEM.

ART. 66.—*Mucilage of starch as an external application in acute Skin Diseases.* By Dr. THOS. W. BELCHER.

(*Dublin Hospital Gazette*, April 1, 1856.)

Dr. Belcher relates several cases of smallpox, in which he used the mucilage of starch as an external application, with very satisfactory results. The entire surface of the body was sponged with tepid water at least once a day, and after this thick mucilage of starch was immediately laid on. There was no pitting, and the itching ceased as soon as the application was made.

ART. 67.—*Treatment of Herpes Circinatus, by the local application of Rottlera Tinctoria* (Kameela). By Dr. WM. MOORE.

(*Dublin Hospital Gazette*, Nov. 15, 1857.)

Kameela is used by the natives of India, not only as an anthelmintic, but also as an application for scabies and other skin diseases, and several Europeans have borne their testimony as to its efficacy in both these respects. Dr. Moore's cases show that it may be a valuable remedy in ringworm.

CASE 1.—The first case in which I applied it locally, was that of Mary P——l, æt. 8 years, who was brought to the Institution for Diseases of Children; she had a well-marked patch of herpes circinatus on the neck, about the size of a sixpence; her head also presented several well-defined marks of herpes. On the 20th of July I first rubbed the eruption on the neck with the kameela, applied on moistened lint.

July 22d.—The eruption was scarcely perceptible; I re-applied the kameela, which completely removed it. Some days after, another patch appeared on the anterior part of the neck, and one on the left forearm, and in both cases one application of the kameela sufficed to remove them. The herpes capitis, which is quite cured, was treated with the Unguent Sodæ Carb. (℈i. to ℥i.) and Lotio Sulphuret Potass (℥i. to Oi.); the alterative treatment being Hydrarg. c. Cret. gr. i., Pulv. Rhei. gr. iv., Pulv. Ipecac. gr. ¼, at bedtime, and a teaspoonful of Oleum Jecoris Aselli, three times daily. My stock of kameela at the time being somewhat circumscribed, prevented me applying it to the head in this case.

CASE 2.—In the month of July last, Michael R——n, a stout lad, æt. about 12 years, presented himself at the Institution for Diseases of Children; he had well-marked herpes capitis, about the size and shape of a half-crown-piece over the right parietal bone. I prescribed a purgative of Calomel and

Pulv. Jalap Comp., to be repeated after the lapse of three or four days, and at the same time ordered him a mixture containing small doses Iodid. Potassium. The local treatment was Ungt. Sodæ Carb. (ʒi. to ℥i.) and Lotio Sulphuret Potass (ʒi. to Oi.) Under this treatment the improvement was manifest, but not so quick as I could have wished; accordingly, on the 3d of August, I applied the kameela on moistened lint, as in the previous case, and after the third application the patient did not return; and he afterwards told me that it had completed the cure. In this case all the merit is not due to the kameela, as the carbonate of soda and sulphuret of potash treatment had been in use some time, but the former application certainly expedited the complete removal of the eruption.

Case 3.—G. P., æt. 4 years, a delicate girl, with glandular enlargement, was brought to the Institution, Pitt Street, Oct. 20th, on which day I applied the kameela to a circular patch of herpes on the left shoulder, which was about the size and shape of a florin, and at the same prescribed Hydrarg. c. Cretâ g. i.; Pulv. Rhei. g. iv.; and Pulv. Aromat. gr. ¼, to be taken every second night.

Oct. 22d.—Eruption had almost disappeared; I re-applied the kameela.

26th.—Herpes quite gone.

Case 4.—James P., æt. 2 years, a stout healthy boy, had a circular sore of herpes circinatus, on the top of the right shoulder, about the size of a shilling; on the 21st of October last I prescribed alterative powders of Hydrarg. c. Cretâ Rhei. Pulv., and Pulv. Aromat., at bedtime every second night, and applied the kameela to the eruption.

Oct. 22d.—Eruption much paler in the centre, edges still red; re-applied the kameela.

26th.—Mark of the eruption scarcely perceptible.

I think this powder may justly be considered a valuable addition to our local applications in herpes, and I have no donbt, in other allied eruptions, of course coupled with alterative or tonic treatment, or both, as the case may be. As regards the anthelmintic properties of this agent, it is highly extolled by those who have given it a fair trial. The dose of the kameela, as an anthelmintic for an adult, is from ʒii. to ℥ss. of the powder, and of the alchoholic tincture, *f* ʒj. However, I shall reserve any further remarks on the vermifuge properties of this medicine till some future occasion, when I hope to bring it under the notice of the profession.

Art. 68.—*Note on Nest-cells,* in relation to Epithelial Cancer.* By Andrew Clark, M.D., &c.

(*Lancet*, Jan. 9, 1858.)

"Although," says Dr. Clark, "nest-cells have been found in sebaceous cysts and myeloid tumours, an opinion still generally prevails, that the presence of these cells in any new growth is almost or quite characteristic of epithelial cancer.

"As there are in my pathological collection about twenty specimens which prove that this opinion must be modified or abandoned, and as there has recently prevailed in the eastern part of the metropolis a peculiar affection of the mucous membrane of the tongue in

* Synon.; Laminated epithelial capsules, epidermic globes, compound epithelial cells, &c. &c.

which nest-cells are found in considerable numbers, I have thought it desirable to make a short note upon the subject.

"1. I have occasionally found nest-cells in the diseased secretions of mucous membranes, particularly in those of the mouth, pharynx, tonsils, and œsophagus.

"2. In apparently healthy mucous membranes, furnished with several layers of epithelial cells, papillæ, and large follicles, nest-cells may commonly be found on some part of the surface: I have scarcely ever found them absent in new growths occupying the same localities.

"3. I have found nest-cells in common warty-tumours of the skin, in cutaneous cysts, in chronic enlargement of the tonsils and prostate, in cholesteatomatous and myeloid tumours, in small tumours of the choroid plexus, in polypi, in the thick white integument round old ulcers, and in the various regions associated with other growths.

"4. In a kind of diptheritic affection of the tongue recently and still to a limited extent prevailing in the east end of London, and in the London hospitals, I have found nest-cells in considerable numbers. This affection becomes first apparent in the form of white cloudy patches irregularly scattered over the tongue. These grow opaque, thick, and soft, and are removed, leaving a bright-red shallow erosion with very thick white elevated margins. A portion of the white patch just before its discharge, or a little of the thickened margin carefully transferred to the field of the microscope, with as little manipulation and compression as possible, will usually exhibit nest-cells analogous to those present in epithelial cancer.

"5. It would be out of place at present, and in the pages of a practical journal, to discuss the mode of origin of these nest-cells: but I think it worthy of observation that they are found in intimate connexion with follicles and papillæ;* and that sections of both, when hypertrophied, are frequently mistaken for the cells themselves.

"It appears probable, from these facts, that the presence of nest-cells, even in considerable numbers, cannot be considered characteristic of epithelial cancer. As, moreover, the common epithelial cells in the advanced stage of the diptheritic deposit above described, exhibit changes in their form and in their nuclei closely analogous to those observed in epithelial cancer, it is obvious that we must seek in wider conditions than those of structure only for a true definition of this growth."

* This is not intended to invalidate the explanation of Rokitansky; for nest-cells are produced where neither follicles nor papillæ exist, though in fewer numbers.

PART II.—SURGERY.

SECT. I.—GENERAL QUESTIONS IN SURGERY.

(A) CONCERNING INFLAMMATION.

ART. 69.—*A form of acute inflammation of Lymphatic Glands.* By Mr. PAGET, F.R.S., Assist.-Surg. to St. Bartholomew's Hospital.

(*Medical Times and Gazette*, Jan. 2, 1858.)

THE following remarks are from certain notes of practice among the out-patients of the hospital:

"A form of acute inflammation of lymphatic glands often occurs, in which all the glands of a cluster appear to coalesce in one swelling, involving both themselves and the tissues between and about them, and accompanied with uniform induration, heat, and pain. The local cause of the disease is seldom evident; it is most frequent in those who are enfeebled by previous illness, or by defective food: its most usual seat is in the glands below the angle and base of the jaw, or in those behind and beneath the upper part of the mastoid muscle. In the former situation, the glands swell out to the level of the jaw, or beyond it, and may feel as if adherent to it; in the latter, being bound down by the tough fascia, they are less prominent; but, in both places, they make swellings of remarkable hardness, with a nearly uniform flattish presenting surface. The integuments over them are usually somewhat œdematous, but not reddened in proportion to the severity of the deeper inflammation.

"In the progress of this disease, which is usually accompanied by sharp inflammatory fever, it is common to find one or two small suppurations, as if one gland in the cluster had suppurated, while the rest remained swollen and hard. The finger passing over the diseased part sinks in as it passes on some small yielding spot; there is no distinct fluctuation, but a circumscribed softness.

"It will be found, I believe, an excellent rule to puncture this soft place as soon as ever it is detected. Usually, after such an opening, the pain is quickly relieved, and the rest of the swelling gradually subsides, without any extension of the suppuration. The opening

may be small (half an inch or less long), but may need to be rather deep. All that seems necessary is the discharge of even a few drops of pus, and then the leaving the part quiet, with warm moist applications over it. If such an opening be not made in due time, extensive suppuration is nearly sure to ensue, and greatly increase the duration and mischief of the disease.

"The rest of the treatment of such cases must usually consist in giving bark, warm purgatives (if any), good food, and in applying warm poultices or water-dressing, and fomentations to the inflamed part, both before and after the puncture."

(B) CONCERNING TUMOURS.

ART. 70.—*On the painless extirpation of Cancerous Growths.* By Dr. JAMES ARNOTT.

(*Medical Times and Gazette*, Jan. 23, 1858.)

Dr. James Arnott's principal object in this paper is to show that cancerous growths may be extirpated by congelation without pain, and with much less danger than usual; and he gives a case in which the plan was tried upon a patient in the Middlesex Hospital.

CASE.—On the 28th of November, at noon, Sarah H—, No. 1, Laffan Ward, had a circular portion of the right breast, three inches and a half in diameter, and enclosing a large occult cancerous tumour, congealed for two hours by a frigorific mixture, at a temperature ranging from 8 to 12 degrees below zero, Fahr. This mixture, which was frequently renewed, was confined to the part by a cup or broad flat ring of gutta-percha, having a short flexible tube, closed by a stop-cock, issuing from its lower border. Immediately after removing the mixture, nitric acid was applied to the skin, and after the acid a thin layer of chloride of zinc paste was placed on it, and allowed to remain until the next day. There was no expression of pain made during or after these proceedings; but being questioned on the subject, the patient stated that for about five minutes, while the congelation was being effected, there was a sensation of tingling like that produced by a mustard plaster. The uneasiness from this was not sufficient to interrupt her account of the origin and progress of the disease, which I had requested her to give just as the congealing process commenced. This tingling of short duration was the only disagreeable feeling experienced during the day. She took her usual dinner while the congelation continued, and slept well during the night. It is proper, however, to relate, that previously to the application of the strong frigorific mixture, I had taken pains to benumb the part very gradually; and after its removal another refrigerating mixture was applied for about eight hours over the chloride of zinc, but kept separate from it by a very thin intervening membrane.

By the middle of next day, a large white slough or eschar had been produced by the combined measures, of exactly the dimensions of the lower opening of the gutta percha vessel, which (from having been previously heated) had adhered firmly to the breast till midnight. For the purpose of ascertaining the extent of the disorganization, the slough was cut in the presence of the resident medical officers to the depth of an inch without causing

the least sensation. No inflammation followed, nor did any redness appear at the margin of the slough till the third day, when its separation had probably commenced. Notwithstanding the continued action of the caustic (which was daily inserted in the manner practised by the French), the patient's general health remained undisturbed until she left the hospital. The lower part of the eschar separated on the 21st of December, and when I last saw her at her own residence on the 7th of January the cicatrization was nearly complete. As her appetite had remained good during the whole of this period, and she had been able to take exercise in the open air, her strength continued unreduced. There had been no occasion to have recourse to cold again for its anæsthetic effects, and the only medicine taken by her during her stay in the hospital was two laxative pills.

"I have not considered it necessary to describe minutely more than the first stage of the treatment; for, as my principal purpose was to show that the dreadful pain produced by caustic can be certainly prevented while its action is much promoted, and the hazardous use of the knife superseded by a comparatively safe measure, a report restricted to that part of the treatment in which the suffering has always been the most acute and the inflammation greatest, would have been sufficient. Whether it proceeded from the deep and lasting preliminary congelation, or from her not having been rendered morbidly sensitive by the very severe suffering that has usually ushered in the treatment by caustic, the patient hardly felt what could be termed pain during the whole period—except on one occasion, when a little of the chloride of zinc paste spread from the slough to the adjoining sound skin.

"The absence of all inflammation, excepting that slight degree which is necessary for the separation of the slough, is as remarkable a circumstance in the above case as the absence of pain, and, in respect to danger is, perhaps, still more important. I have on several occasions endeavoured to draw the attention of surgeons to the important fact, that congelation judiciously employed often constitutes an unfailing preventive of inflammation; but no evidence of this can be more satisfactory than a statement recently made by Dr. V. Pettigrew, and reported in the 'Medical Times and Gazette' of the 5th of December, 1857. So completely is all injurious or excessive inflammation prevented by intense cold in incised wounds, that of ninety-three operations performed by him under it, and of which ninety were perfectly painless, only one did not heal by the first intention when this was desired.*

"Questions of considerable importance as respects the removal of growths by congelation and caustic are, whether one slough should be allowed to separate by the natural process before another is formed; whether a fresh slough should be made under a previous one; or, finally, whether the sloughs produced should be removed by some mechanical or chemical means, in order to give these combined mea-

* It is very possible, however, by continuing the cold too long, to reduce the vital powers beyond the degree required for union by the first intention. This happened some time since, in two cases at Guy's Hospital, under the care of Mr. Birkett. From the congelation having been continued at least four times longer than was necessary, the wound healed slowly and by granulation.

sures ready access to the living parts beneath. Each of these plans may be the most appropriate to certain cases. The first is the most tedious, unless a very powerful and deeply operating combination of these agents be employed, and in that case there is danger of the destruction of texture extending too far. The making of incisions in the slough for the insertion of caustic has been practised for the last fifteen years by M. Girouard, a physician at Chartrès, though it is uncertain whether Canquoin, the celebrated cancer-curer, did not precede him in the use of a similar method. The surgeons of the hospital at Chartrès sometimes burn holes with cylinders of caustic potash and lime, into which they insert pieces of chloride of zinc paste; and, more lately, caustic has been inserted deep in the flesh, either by previously puncturing the part with a knife (the practice of M. Maisonneuve), or by injecting liquid caustic through a capillary tube.

"When perfected, the third plan will probably be the best. The slough formed by intense cold could be easily removed by bent scissors, and under congelation, without uneasiness. Still softer, and more easily removable, is the slough produced by alkaline caustics, and the objections to them hitherto may be obviated by using the gutta-percha cup in their application. They are thus prevented from spreading, and any hæmorrhage produced by them can be immediately checked by chloride of zinc, or by extreme cold alone. The contrivance of the cup will also enable us to soften or dissolve the harder eschars formed by the mineral acids or metallic salts.

"The union of pressure with frigorific agents facilitates the extension of congelation, by arresting the circulation through the part. They may be combined in a variety of ways, such as by pressing on the part a metallic vessel filled with a frigorific mixture; dipping such a vessel into mercury, confined to the part by a gutta percha cup; pressing a surface under the action of a frigorific, with a cylinder of wire-work; compressing the air in a close cup, containing a refrigerating mixture, &c. These plans complicate the process, but under certain circumstances their adoption may be indispensable.

"The combination of disorganizing and benumbing cold with caustic renders it of less importance to terminate the process of extirpation speedily. The extreme sufferings of the patient under the usual caustic treatment have too often induced the surgeon to hasten the removal of tumours, at the risk of leaving some portion of the disease behind.

"It was my intention, after describing the mode of removing tumours by the combination of intense cold with caustic, to enter upon the question, whether congelation, sufficiently prolonged, might not alone answer the same purpose, and, on some occasions, more advantageously. In two cases at the Middlesex Hospital this method was adopted, and with results of a very satisfactory nature, the description of which, however, as this paper has already exceeded its proper limits, must be deferred to another occasion. I will only state that these trials showed that the destruction of cancerous growths can be effected in as well-defined a manner by intense cold alone, as by its combination with caustic, but that the part must be kept thoroughly

congealed for several hours. Such slow destructive action, though an inconvenience as respects this particular use of intense cold, is a fact of immense value in reference to its employment for operations and other remedial purposes, inasmuch as the knowledge of it will dispel the fear of injury to the textures which has hitherto impeded these uses of it. It were unreasonable, however, to consider the difficulty and trouble of pursuing this treatment of cancer, as an objection to it. Difficulty, if surmountable, is no sufficient reason for rejecting a remedial measure, for which there is no substitute; and no conscientious practitioner will object to what is requisite for his patient's safety, or freedom from suffering, merely because it is troublesome. Besides other advantages, the far-pervading influence of congelation may be absolutely required to destroy the vitality of those germs of the disease that lurk in places which cannot safely be invaded either by the knife or caustic; for extreme cold, as I have explained at length in my work on 'Cancer,' will destroy the cells and granules constituting the essence of the disease, without injury to the structures enveloping them."

ART. 71.—*On the transcurrent application of the Actual Cautery in White Swelling.* By M. NOTTA.

(*Medico-Chir. Review*, April, 1858.)

Upon the propriety of employing the actual cautery in the treatment of white swelling, a procedure revived by Pouteau, Larrey, and Percy, great discrepancy of opinion prevails amongst the best Parisian practitioners. Thus while MM. Nélaton, Guersant, and Bonnet resort to the actual cautery and other repulsive remedies, MM. Malgaigne, Chassaignac and R. Marjolin entirely reject this means, and MM. Sédillot and Bouvier only cauterize the epidermis in the slightest possible degree. During the author's *internat* he had been struck with the fact that the only cures which took place were due to the actual or potential cautery; and since he has been surgeon to the hospital at Lisieux he has continued to derive advantage from this revulsive treatment, and especially the form of it known as transcurrent cauterization.

The disease may be considered under three stages. First, there is an inflammatory condition of one or more of the elements constituting the articulation, an inflammation that may be either simple or rheumatic, spontaneous or traumatic. The second stage is termed by Chassaignac the transition period of the disease: the white swelling is forming, and, under the influence of diathesis, the articular affection takes on a chronic form: the soft parts become engorged, and the ends of the bones enlarged, but there is as yet no articular displacement. In the third stage the white swelling is formed, and the softened ligaments have allowed of displacement of the surfaces, which have also become eroded and crepitant. Abscesses and sinuses form, and the general health completely gives way. Various degrees of this stage may be present, but the same treatment is applicable to all of these. For the treatment of the first stage all

practitioners agree in prescribing antiphlogistics and repose; and it is still to the same measures we must have at first recourse in the second stage, conjoining with them the treatment appropriate for the diathesis itself. But if antiphlogistics do not soon arrest the progress of the disease, douches, iodine frictions, compression, &c., must be employed—a series of measures which, if sometimes of use, are too often inefficacious, and compel resort to be had to large flying blisters, covering the whole joint, and which, dressed with mercurial ointment, may require to be repeated from ten to fifteen times in succession. If these means fail, whether from want of due perseverance in their application or from their insufficiency, more powerful revulsives must be employed, principal among which is transcurrent cauterization, as devised by M. Bonnet and employed by M. Nélaton.

A hatchet-shaped iron is employed, having its edge blunt and its back very thick, so as to retain much caloric. Heated to whiteness, this is passed over the entire articulation, by tracing with it parallel lines which are from twenty to twenty-five millimetres distance from each other. The iron should be passed slowly three or four times in the same day, taking care not to lean too heavily, so that the skin may not be divided, while as much caloric penetrates as possible. Several irons should be in readiness, so that the operation may be performed as readily as possible. Chloroform should be first administered; or if the patient objects to this, a frigorific mixture should be employed, the iron, in this last case, requiring to be somewhat more weightily applied. When the application is finished, the joint becomes red, swollen, hot, and painful; and it is to be covered with compresses dipped in very cold water, and which, renewed every few minutes, are to be continued as long as the severe burning sensation continues. At the end of a period varying from five to twelve hours the pain is assuaged, and for the compresses may be substituted cold linseed poultices, which are to be changed every two or three hours during the first day, and three times a day subsequently. The eschars enlarge, and in from seven to twelve days become detached; and as the epidermis covering the portions of skin comprised between the rays often become raised, the whole surface of the joint, after the detachment of the eschars, is in a state of suppuration. The cataplasms can now no longer be borne, and must be exchanged for cerated dressings. The period required for cicatrization varies from two or three weeks to several months. With the local treatment should be conjoined an internal treatment by means of cod-liver oil, iron, iodine, &c., according to the exigences of the case.

M. Notta gives the details of nine cases which have been thus treated under his care, all being undoubted examples of white swelling, of a duration varying from two months to several years. The duration of the treatment varied from four and a half months to nine months, and its results were the restoration of the movements of the limbs in two cases, and cure by anchylosis in seven.

(c) CONCERNING WOUNDS AND ULCERS.

ART. 72.—*Powdered Chlorate of Potass as an application to Ulcers, &c.* By Mr. JONATHAN HUTCHINSON.

(*Lancet*, Dec. 26, 1857.)

The following paper is from the Clinical Records of the Lancet:

"For some time past, at the Metropolitan Free Hospital, Mr. Hutchinson has employed the powdered chlorate of potash as an application to cachectic ulcers. In most cases it appears to exert a very beneficial influence, speedily inducing cicatrization; and it is very convenient of use. The cases in which it has best suited have been some of ulcers of the leg, open buboes, simple sores on the skin of the penis, and cracked nipples. In the latter it answers admirably. The salt should be powdered very fine and dusted into the sore with the finger. It produces sharp smarting for a short time, but the pain soon subsides. In most cases suitable for its use it is also desirable to prescribe its internal administration; but with a view to making the experiments more conclusive, in the cases upon which M. Hutchinson founded his opinion of its efficacy, no other treatment was adopted."

(d) CONCERNING FRACTURES AND DISLOCATIONS.

ART. 73.—*On Resection in Compound Dislocation.* By Professor HAMILTON.

(*American Journal of Medical Science*, 1858.)

In this paper Professor Hamilton, of Buffalo, relates an interesting case of compound dislocation of the tibia inwards, together with fracture of the fibula, and in which a very useful limb followed resection of the lower end of the tibia. He enters into the question of treatment at some length. As compared with simple dislocation, the accident is of very rare occurrence; for of 94 instances of dislocation reported by Norris, only two were compound, and both these were dislocations of the thumb. Among 166 dislocations, recorded formerly by Dr. Hamilton himself, there were only eight examples of compound. Of these, four were dislocations of the tibia inwards at the ankle-joint; one was a partial (pathological) dislocation forwards of the same joint; one was a luxation of the astragalus; one a luxation of the humerus into the axilla; and one a forward luxation of the radius and ulna at the wrist-joint. Compound dislocation is a much more dangerous accident than compound fracture; and Dr. Hamilton does not think A. Cooper succeeded in assigning sufficient cause for the difference. He believes, himself, that it is chiefly to be found in the fact that dislocations are usually reduced and maintained in place by apparatus,

while compound fractures are not in general reduced, and, if they are, cannot be maintained in position. It is to the stretching and strain of the muscles, tendons, and other soft tissues, during and subsequent to reduction, that the mischief is chiefly due.

Dr. Hamilton passes in review the various other means of treating the accident,—viz., leaving the part unreduced, amputation, tenotomy, and resection, and gives the entire preference to this last, as being that which most conduces to the security of life and the preservation of a useful limb. As to the first points: "if we consider the life of the patient only, the arguments and the testimony seem to favour resection in a great majority of cases of compound dislocation occurring in large joints, and in a considerable number of cases of similar accidents in the smaller joints. It is certainly more safe than reduction without resection or non-reduction, and it is probably quite as safe as tenotomy or amputation." As to the amount of maiming or mutilation, the question lies between reduction without and reduction with resection. 1. In either case the inflammation consequent upon the injury may be violent, and the recovery tedious; but the amount of resulting maiming must much depend upon the duration and intensity of the inflammation, and upon this point testimony is in favour of resection. "It will be observed, that not only is the danger of maiming rendered more considerable by reduction without resection, because the inflammation is so much more likely to extend to the tendons and muscles, causing them to adhere to each other, and to become subsequently atrophied, a condition from which they often never completely recover, but also because the ligaments and capsules of the joints, with the synovial surfaces, are in consequence encroached upon, and the freedom of motion is ever afterwards greatly restricted, if not completely lost. This marked impairment of the functions of the joint does not always happen, but it cannot be denied that it does generally. How is it, on the other hand, with these joints after resection? I have thus far heard of no cases in which complete anchylosis resulted; but in all considerable freedom of motion has returned, and in some the restoration in this respect has been nearly or quite as complete as before the accident." 2. The limb can be retained in place far more easily after resection than when this is not performed. 3. The amount of shortening after resection need not exceed three quarters of an inch, and is often not more than half an inch—an amount of shortening that does not necessarily produce a halt, and the existence of which may not be known to the patient.

Art. 74.—*On bending and partial fractures of the Long Bones.* By Professor Hamilton.

(*New York Journal of Medicine*, Nov., 1857.)

This paper is founded upon certain experiments performed by Professor Hamilton upon the legs of chickens, with references to cases that have occurred in his practice.

1. *Bending of the long bones.*—This is considered *first* in relation to the *immediate and spontaneous return of the bone to its original form.*

The possibility of the occurrence is amply demonstated by the experiments, in which the bones were bent to an angle of 25°, and immediately resumed the straight position; dissection, made a few days afterwards, exhibiting no traces of injury having been done to the bone. The author, therefore, infers the possibility of this occurrence taking place in the long bones of an infant. *Secondly*, with the exception of some few cases, in which while one of the bones of the forearm has been broken and the other only bent, Dr. Hamilton is not aware of any instances of *permanent bending* of the long bones. None of the cases so reported by authors have been verified by dissection, and he believes, with Gibson, that they are really examples of partial fracture. None of his experiments furnished any such results. Of course no one denies that permanent indentation of the flat bones may take place.

2. *Partial fractures.*—These are considered under the same divisions: *First, with immediate restoration of the bone to its original form.* Although the existence of this form seems to have been occasionally recognised, it has not excited any special attention. The few cases that have been met with in Professor Hamilton's practice have occurred in the clavicle. Of 72 fractures of this bone, 17 were partial; and of these, 4 were immediately followed by spontaneous restoration of form. Of 5 partial fractures produced in chickens, it was observed in 1. In the cases of fracture of the clavicle, the force has operated indirectly on the bone from the shoulder. A hard node-like swelling is observed at about the middle of the clavicle, unaccompanied by movement or crepitus, with the skin only slightly or not at all tender, and the axis of the bone being unchanged in direction. The *second* form, *without* immediate and spontaneous restoration of form, comprises the great bulk of cases of partial fracture. It probably differs from the other variety in the extent of the bony lesion, and in the peculiar form and degree of denticulation at the seat of fracture preventing the restoration of the form of the bone. The author has observed it in 13 of 72 cases of fracture of the clavicle, and in 12 of 188 cases of fracture of the radius and ulna. He has met with it in no other bones, although other authors have described it occurring in other long bones. He describes the appearances on dissection of the legs of some chickens which had been partially fractured a few days. Prior to dissection the limb still seemed bent, but this was found to arise from the subcutaneous effusion of lymph on the side which had been broken. Beneath the periosteum, too, there was a loose, thin, honeycomb deposit of ensheathing callus, which surrounded the bone in three fourths of its circumference, being wanting exactly along the line of fracture, the seat of which was thus indicated by an oblique groove. Dissections in the human subject have also been made by Glaser, Camper, Bonn, and Campaignac. The diagnosis is not difficult, the distortion indicating fracture, while the absence of crepitus and mobility, and the mode of production, points to its partial character. No great anxiety need be entertained if the bone cannot be completely straightened, the natural form usually being restored after the lapse of a few weeks or months. "The gradual restoration of these bones is due to the same circumstance which produces at

other times an immediate restoration—viz., the elasticity of the unbroken fibres; but which elasticity, in this latter instance, is, for a time, effectually resisted by the bracing of the broken fibres. At length, however, in consequence of the gradual absorption of the broken ends, this resistance is removed, and the bone becomes straight. If this absorption does not take place, and the fibres continue pressed forcibly against each other, as in the case described by Campaignac, the bone remains permanently bent."

3. *Fissures.*—In this section the author relates an interesting example of fissure occurring in the scapula, and refers to the fissures of various bones, as described by other authors; but this part of his essay does not call for further notice.

(D) CONCERNING OPERATIONS.

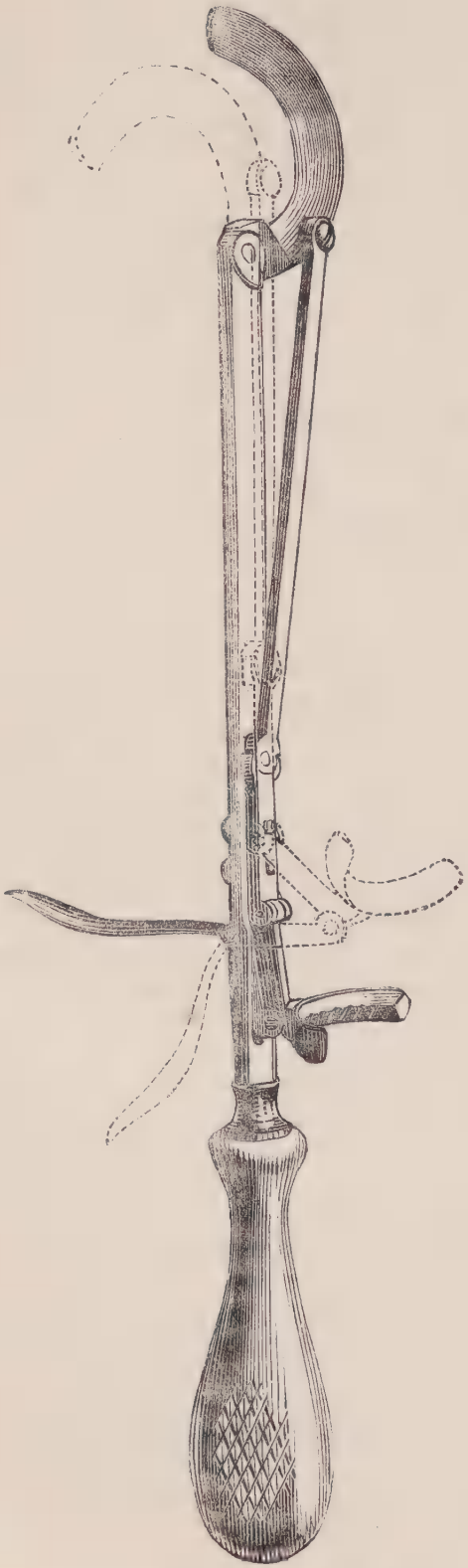
ART. 75.—*The after-treatment of Surgical Operations.* By Dr. BROADBENT.

(*Liverpool Med.-Chir. Journal*, July, 1857.)

In a paper read before the Liverpool Medical and Chirurgical Society, Dr. Broadbent states his belief, that one most common obstacle to the union by the first intention is the occurrence of hæmorrhage, one or two hours after the operation; not to such an extent as to require the removal of the dressings, but sufficiently to form a coagulum of such a size as to seriously interfere with the union of the wound—acting, in fact, as a foreign body. The cause of this appeared to be, that in amputations, &c., when the surfaces were brought together immediately after the completion of the operation, the vessels were tied while the patient was still suffering from the shock of the operation, or it might be, was somewhat depressed by the after-effect of chloroform, whilst the more minute vessels were prevented from oozing, by their exposure to the air, and that when reaction took place, the hæmorrhage came on. The author thought that those cases in which this occurred to such an extent as to necessitate the reopening of the wound, usually terminate more favorably than others. He therefore advocated the plan of postponing the dressing until all oozing had ceased, and the cut surfaces had glazed over. The unnecessary removal of dressings, he believed to be another frequent cause of non-union. He thought that the sutures having been removed, the bandages, &c., should remain untouched till the third or fourth day, and should then be carefully cut off. The inability of the patient to maintain the required position, acted in the same way, and to obviate this, it was suggested that the patient should, before the operation, be habituated to the position in which he would have to lie after it. In the maintenance of the position of the parts, by means of pressure, the author believed that small air-cushions might be advantageously used, instead of pads of lint.

ART. 76.—*A new Polyptome.* By Messrs. BIGG and MILLIKIN.

(*Medical Times and Gazette*, Jan. 2, 1858.)



This instrument has been invented within the last few weeks for Dr. Lever, by Messrs. Bigg and Millikin, of St. Thomas' Street, Borough, and is intended to facilitate the operation of removing broad-based uterine polypi. The instrument, as may be seen from the engraving, consists of a semicircular blade cutting by its concave edge, which plays freely round a circular joint placed at the end of a steel stem or shaft $5\frac{1}{2}$ inches long, when worked by a trigger and thumb piece or crescent, which pushes a slide and lever acting on the blade, forward and back. When prepared for use, the lever is drawn back, the edge of the blade being then passed over the part which is to be exercised; the operator may now make gentle traction by means of the handle, while by pulling the trigger he causes the blade to sweep forward with a cutting movement, for about $1\frac{1}{8}$ inches. The instrument now becomes a cutting hook, the cutting edge being in the whole length of its concavity. The operation may now be completed with this hook by simple traction, or, if the base be too broad for this to be done, the lever may be withdrawn with the thumb, and the first step of the operation repeated.

This ingenious contrivance gives the operator the advantage of exercising at will either the cutting motion of a knife, or what is technically termed "incision by traction;" an advantage which will, no doubt, be fully appreciated by those

surgeons who are at all acquainted with the difficulties met with in performing these operations

There is a "hook," very similar in shape to that formed by the cutting-blade and shaft of Messrs. Bigg and Millikin's "Polyptome" when the lever is thrust forward, in the Museum of the Royal College of Surgeons. It is evidently of very ancient date, and is unnamed. It lies close to a box of amputating instruments which were taken from the French in Egypt; but it is simply a solid hook, intended only to cut by traction, like the elegant polyptome of Dr. Simpson.

(G) CONCERNING ANÆSTHETICS.

ART. 77.—*The advantages of a proper Apparatus for Anæsthetic Inhalations.* By M. DEVERGIE.

(*Lancet*, Feb. 27, 1858.)

The profession are not as yet quite agreed as to the best and least hazardous way of administering anæsthetic inhalations: some give the preference to the handkerchief or piece of lint, and others always use some apparatus more or less complicated. A solution of the problem has lately been attempted by M. Devergie in a paper read before the Academy of Medicine, of Paris. The author says, in summing up: "Death during anæsthetic inhalations may take place by asphyxia, the lungs being insufficiently supplied with air; and for such an accident, the person administering the anæsthetic agent is to blame. Now I conceive that we should use chloroform in such a manner as to prevent any error of this kind, both on account of the safety of the patient and our own responsibility. Hence I consider myself justified in recommending the use of apparatuses having well regulated and permanent orifices for the admission of atmospheric air."

The views of M. Devergie have been warmly discussed at the Academy of Medicine, where the frequency of death by asphyxia, and the great advantages attached to the use of apparatuses, were put in question. This discussion induced M. Ludger Lallemand, who has made numerous and important experiments on anæsthetic agents, to write a letter to the Academy, in which he defends the following propositions, the subjects of his experiments having been taken from several classes of vertebrated animals, from reptiles and from birds:

"The action of chloroform is in a direct ratio with the activity of respiration and circulation. The rapidity and intensity of anæsthetic phenomena are also in a direct ratio with the quantity of chloroform administered within a given time, viz., with the degree of concentration of the inhaled vapours; but this rapidity and intensity are identical *quoàd* their nature and mode of evolution.

"Chloroform, by an elective affinity, accumulates in the nervous centres, the excito-motor properties of which it suspends, as also the sensitive and motor power of the cerebro-spinal nerves. It has been found, by chemical analysis, that the brain and spinal marrow contain

about ten times more chloroform than the blood and highly vascular organs (as, for instance, the liver), the analysis being made on equal weights.

"I have *always* seen, in chloroform inhalations, respiration stop before circulation: the action of the heart and arterial pulsations lasted from one to six minutes after the complete abolition of respiratory movements.

"*All* the animals which were left uninterfered with after the breathing had ceased died, although circulation still existed at the time the inhalations were stopped. Ten times out of twelve I succeeded in recalling life into dogs and rabbits by means of insufflation into the lungs practised with a bellows and tube, the latter being introduced into the trachea. This insufflation was each time begun after the cessation of the heart's contractions, and was carried on until respiration was re-established.

"Insufflation acts by artificially eliminating the chloroform, and by stimulating the excitability of the nervous system. The chloroform is thus very rapidly driven from the organism, and the pulmonary surface is the normal outlet for this elimination, in which latter the cutaneous surface is concerned in a very limited degree.

"Death can be explained neither by paralysis of the heart nor by asphyxia depending on an insufficient amount of air supplied to the lungs; for I have killed dogs, which presented the phenomena described above, by injecting the vapour of chloroform into the jugular vein. It should, however, be stated, that I found, on post-mortem examinations, venous congestion, as is observed after asphyxia; but this circumstance should be attributed to the persistence of the heart's action, and to the diminished permeability of the lungs depending on arrested respiration, these two phenomena leading to the accumulation of blood on the right side of the heart.

"It seems to me that death is chiefly owing to the abolition of the functions of the nervous centres, which latter gradually lose their vital properties under the narcotic influence of the chloroform which accumulates in the cerebro-spinal substance.

"It appears to me indispensable, in surgical anæsthesia, to dilute the vapour of chloroform with a large, and, as far as practicable, regulated proportion of atmospheric air, because the intensity and rapidity of action of such vapour are in a direct ratio with its concentration."

It should be added that M. Ludger Lallemand, who is secretary to the Société Médicale d'Emulation, was assisted in his experiments by a committee of the society.

SECT. II.—SPECIAL QUESTIONS IN SURGERY.

(A) CONCERNING THE HEAD AND NECK.

ART. 78.—*Sequel to a case in which the skull was trephined for rupture of the meningeal artery fifteen years ago.* By Mr. COCK, Surgeon to Guy's Hospital.

(*Guy's Hospital Reports*, Third Series, vol. iii, 1857.)

This remarkable case, of which we have here the end, is fully related in the 7th volume of the first series of the Guy's Hospital Reports, but the principal facts are recapitulated in the present account.

CASE.—John P—, æt. 46, a painter in the employ of Messrs. Maudslay and Co., was admitted into the hospital on September 2d, 1841. While at work he fell from a height of about seventeen feet upon a piece of iron which was lying on the ground below. He was stunned by the fall, but was recovering from the shock at the time he reached the hospital. A large scalp wound extended from the middle of the forehead along the vertex of the skull, and terminated a little to the left of the occipital tuberosity, and a flap was detached, so as to expose about the upper third of the left parietal bone; but no fracture could be detected; he had lost much blood. He remained conscious, and was so eleven hours after the injury, when he was able to get out of bed; four hours after this, he was found by the dresser in a state of perfect unconsciousness, with stertorous breathing and contracted insensible pupils. He continued to get worse and worse, and the case appeared nearly hopeless, when, judging from the nature of the accident and the symptoms that it was one of compression from hæmorrhage, I determined to trephine. I was guided in my choice of locality for the operation by the fact, that on pinching the left arm and leg they were freely and readily retracted, while not the slightest motion could be excited in either extremity of the right side. A large piece of bone was consequently removed, above and behind the anterior inferior angle of the left parietal bone; a gush of blood immediately took place, and a portion of a large coagulum which existed between the dura mater and skull was removed. No fracture could be discovered. The deep stertor of the breathing almost immediately ceased, and on the following day the man moved his right arm and leg freely, and recognised his wife when she came to see him. He after this continued to progress favorably, the only drawbacks to his speedy recovery being some suppuration and exfoliation of bone.

He shortly resumed his work, and continued in full employment and in excellent health for thirteen years. I have had frequent opportunities of seeing the patient after he left the hospital, and the following memoranda, extracted from my note-book, will serve to continue the case, as recorded in the volume of 'Guy's Hospital Reports' above mentioned, up to the period of the man's death.

May 16th, 1842.—Removed a portion of bone which had exfoliated from the margin of the trephine aperture. Is in perfect health, but says he has

occasional pain about the opposite ear, and stiffness of the muscles below the mastoid bone. Insists that his mental and sexual powers are more vigorous than previous to the accident. Thinks it has "cleared his head."

June 12th, 1842.—Quite well; the exuberant granulations indicate a further portion of exfoliating bone.

January 31st, 1843.—Extracted a large portion of dead bone, about an inch and a half square, including a third of the circumference of the trephine hole. It was the entire thickness of the skull; the under surface unchanged, and marked by the dura-matral vessels.

March 12th, 1843.—Removed two small portions of bone. The wound filling up. A few minute fragments of bone have come away during the last few months.

November 5th, 1843.—The wound cicatrized, with a very thin pellicle of skin; the cicatrix pulsates. His health continues exceedingly good, and he is capable of undergoing great fatigue and exertion.

May 13th, 1849.—I have had frequent opportunities of seeing him during the last few years. He has continued in perfect health, following his employment, going up ladders, &c. He now informs me that a month ago he had a slight "fit," and that yesterday he had three fits, each lasting only a few minutes; that during the fits the right side of the face worked, and that the right hand was firmly closed. The right leg appears to have been but little, if at all affected. He was purged and cupped nuchæ, with great relief.

August 26th, 1849.—Had a similar attack a few days ago; otherwise in perfect health. Was again cupped.

October 14th, 1849.—Has had epileptic fits this week, affecting the right side. Was dry cupped.

During the next few years he continued to be the subject of occasional epileptic fits at irregular intervals, but still continued his employment, although the attacks became gradually more frequent and more severe in their character. During this period he was accustomed to seek relief from dry cupping.

The last memoranda of this case are from the notes of Dr. Gull, under whose care he was admitted into Guy's in February, 1855.

He is therein stated to be suffering from partial hemiplegia of the opposite side of the body to that of the injury; the face included in the paralysis, and the speech somewhat affected; also that he has some slight mental confusion. The patient then said that he had of late suffered from epileptic attacks, the fits being at five weeks' to three months' interval, and characterised by much irritability before the seizure, and almost complete unconsciousness for some hours afterwards. He never had any paralysis until after the last attack, which was six months before his admission into the hospital.

On August 30th, 1856, he was seized with an apoplectic fit, and shortly died. A post-mortem examination was made at his house on the following day, by Dr. Wilks, who adds the accompanying report:

The body was that of a stout, strong, healthy-looking man. A scar was seen running from the left side of the forehead to the vertex, but the site of the operation was not observable until a careful search had been made, as the part was covered with hair, and was continuous with the surrounding scalp; it could, however, be accurately defined by the finger, which, by being passed over it, could detect the extent of the vacuity in the bone, the hard boundaries which surrounded it, and the soft, elastic, and easily compressible membrane by which it was covered. In order to remove the calvaria, it was necessary to leave the portion of scalp which closed the opening on the outside of

the bone, and the dura mater, which closed it within, so firmly had these membranes become incorporated. Upon cutting through the portion of brain immediately beneath, and which was adherent by its serous covering to the dura mater, a large quantity of semi-coagulated blood fell out, and presently three or four ounces more issued from the ventricles. The latter, which were full of blood, communicated with the softened brain-structure at this part, and thus the section caused the whole of their contents to escape. This apoplexy, which was the immediate cause of death, by infiltrating all the structures in the neighbourhood of the injury, unfortunately prevented a full knowledge of the exact condition of the parts prior to its occurrence. The principal source of the hæmorrhage had been, probably, in the left corpus striatum or thalamus opticus, for at the right side these bodies were quite healthy, whereas on the left they were reduced to a pulp by the blood which was effused within them; the middle lobe of the hemisphere external to this was in a like condition, even so far as the neighbourhood of the original seat of injury, and therefore, as before said, when the latter part was incised the clots at once made their way from the ventricles. This region of the brain, when the blood was washed away, was no doubt the subject of old disease; the structure was soft and of a light-brown colour, and from so large a space being filled with blood, it was probable that a hollow space had been produced here by the *ramolissement*, that is, in the middle hemisphere, opposite to the hole in the skull, and reaching downwards to the base, and inwards towards the ventricles as far as the thalamus, whose surface also appeared to have been involved in the same chronic degenerative process. It appeared probable, then, that a softening had been going on for some months in the middle hemisphere of the brain, involving the contiguous surfaces of the corpus striatum and thalamus, and that at last a rupture of a vessel had taken place, infiltrating all these diseased structures as well as the ventricles.

The softening which favoured the final hæmorrhage was no doubt due to the state of the blood-vessels, which were found extremely diseased throughout the brain; the patient remaining so many years in good health sufficiently proves that the cause of the softening was to be found in them rather than in the original injury. Why this part of the brain was the principal seat of the impaired nutrition need occasion no surprise, since it is well known that injured parts, from the altered circulation or other causes, do often remain permanently weak. A disturbance in the circulation, or an imperfect supply of blood to the brain, might very readily be conceived to have set up a decay in this part rather than in any other.

As regarded the original wound it was not replaced by the growth of any new bone, but the trephine opening was filled by a tough membrane composed of the integument on one side and the dura mater on the other. These were firmly blended together, and formed a sufficiently strong protection to the brain; they were strongly united to the edges of the opening; the latter being rounded, with smooth edges, and was a little more than an inch in diameter. At its upper part there were two deep depressions, whence, probably, the diseased bone had proceeded, and there was evidence of a considerable ostitis having occurred all around the site of the trephining, particularly at its front part. Here over the left protuberance of the frontal, the bone was more than twice as thick as the corresponding part of the opposite side. For about two inches around the opening, the dura mater was closely adherent; and upon removing it, the inner surface of the skull was seen to be covered with a number of bony points or granulations. Immediately in front of the trephine hole there was a depression in the bone, which extended upwards and downwards for a length of three inches. It was caused by the

ridge of new bone immediately in front of it, and might, with some possibility, have been the site of a fracture which took place at the time of the injury; from the great change, however, in the structure of the bone, it was impossible to prove this satisfactorily.

Art. 79.—*On the formation of artificial pupil by the Galvanic Cautery.* By M. Tavignot.

(*Mon. des Hôp.*, No. 119, 1857; and *Med. Times and Gazette*, Jan. 16, 1858.)

M. Tavignot, after enumerating various circumstances which may render the results of the ordinary operation for artificial pupil unsatisfactory, states that he has been for some time considering the applicability of the galvanic cautery for this operation, and has succeeded in employing it. Its chief advantages are, that the new pupil may by it be established instantly, and without hæmorrhage, and that its dimensions and shape can be exactly determined. Being a more simple manœuvre than the tearing through the iris, it is less likely to be followed by inflammatory consequences. Moreover, the aperture can as easily be made in the cases in which false membranes line the posterior surface of the iris, or obstruct its central portion. Thus far he only deems this procedure applicable to subjects who have already undergone the operation for cataract; as in the case of the lens being present its opacity would be induced during the application of the caustic. M. Tavignot prefers Bunsen's pile; and having made an incision at the external circumference of the cornea, he passes in the caustic-rod, directing its platinum ring to the point he wishes to influence, taking care not to cauterize the posterior surface of the cornea, nor the edges of the wound.

Art. 80.—*Dislocation of the Crystalline Lens.* By Mr. White Cooper.

(*Medical Times and Gazette*, Jan. 2 and 9, 1858.)

In these papers Mr. White Cooper relates some interesting cases of this accident, and lays down the following rules for the treatment of these cases:

"When an opaque lens lies in the anterior chamber, it can only be regarded in the light of a foreign body, and the safest course will be to extract it. Instances have been mentioned where little irritation has been caused, but these are exceptional, and it must be borne in mind that inflammation may be lighted up at any moment—the vibration of a railway, the shaking of horse-exercise, or a multitude of other circumstances, may give rise to it. According to my experience the operation of extraction in such cases is attended with little risk, and by its performance the eye is relieved from a great and constantly impending peril. Undoubtedly the consent of the patient may be withheld, and then we can only adopt palliative measures if inflammation exists, or precautionary measures if the patient has the good fortune to escape it. If the patient be very young—and

Mr. Walton mentions a case of dislocated lens in an infant of three months old—absorption may take place without the necessity for an operation.

"In proceeding to extract opaque lenses, I give the preference to the lower section; this enables the lens to escape at once if free, or if adherent to the iris, the connexion can be separated with facility. We should remember, when dealing with a spontaneously displaced lens (especially if the lens be osseous), that the vitreous humour is almost certainly fluid, and that, therefore, the gentlest handling will be necessary. If the hard lens is behind the iris and attached to it, the pupil will probably be so rigid as to make it exceedingly difficult for the lens to pass through; under these circumstances it is far better to slit the margin of the pupil with a pair of scissors, and so to enlarge it, than to endeavour to force the lens out; for the vitreous humour will escape, though the lens will not, and so the globe may be emptied to a serious extent.

"Though not an advocate for the use of chloroform in ordinary extractions, I consider it of the greatest value when dislocated and osseous lenses have to be removed. Adhesions may exist; the operation is then necessarily prolonged, and requires extreme care and delicacy in the performance. Without chloroform the eye becomes restless and irritable, retreating from every touch, while the lids spasmodically close. The anæsthetic, then, is a great boon to the operator, and a still greater to the patient, sparing much suffering while under the surgeon's hands, warding off secondary neuralgic pain and irritation, and thereby hastening convalescence."

ART. 81.—*Case of Vascular Tumour of the Orbit successfully treated by injection of Tannin.* By Mr. HAYNES WALTON, Surgeon to the Central London Ophthalmic Hospital, &c.

(*Proceedings of Royal Med. and Chir. Society*, Jan. 26, 1858.)

CASE.—A lady, æt. 20, was sent to Mr. Walton by Mr. Square, of Plymouth, in 1856, on account of a vascular growth in the left orbit. The eyeball was prominent, and turned slightly upwards and outwards, restricted in motion, and incapable of being directed inwards. The lower eyelid bulged, and was slightly discoloured, especially towards the nose. By turning down the tarsal margin there was exposed a growth, having the appearance of a congeries of veins attached to the eyeball, and which was evidently only a part of a larger mass. Pressure emptied it, the act producing pain, and redistension took place very slowly.

The chief subjective symptoms were, pain on the slightest exertion, and in extremes of temperature and during the catamenia; inability to lie down, in consequence of unpleasant sensations in the orbit and head; vision nearly extinct. The affection was congenital. Very soon after birth, slight swelling of the lower eyelid was discovered. At the age of 13, it attracted attention generally; and besides being larger, there was a bluish tint of the integuments. Reading or writing for some hours always caused temporary enlargement, and heightened the colour.

Mr. Walton diagnosed the tumour to consist chiefly of dilated and tortuous veins, and came to the conclusion that it was limited to the anterior

and inner part of the orbit, and did not pass posteriorly. He resolved to treat it by the method of injection, and sought for an agent which might be safely used. Some experiments with the perchloride of iron caused him to reject it as unsuitable, from the tendency of the free acid which it contains to produce sloughing, or at least severe local action—a result to be avoided in such a situation. Ultimately, he determined to employ tannic acid, as an agent not possessing caustic properties, and one readily producing coagulation of the blood. A strong solution of this substance was thrown in with a syringe. There was rapid cessation of the hæmorrhage which followed the preliminary puncture, and the solidity of the tumour showed the extent of the coagulating action. Considerable swelling of the eyelid and chemosis of the conjunctiva ensued, accompanied with local pain and slight constitutional disturbance, but this was of short duration. A slight incision deemed necessary in the tumour was in a day or two followed by a dark-brown discharge. Later an abscess formed under the lower eyelid, and was evacuated by an external incision. The eyelid was long paralysed, but ultimately the movement completely returned. The discharge from the tumour continued for many weeks, varying in quantity, and several times pain and local irritation preceded the escape of fibrinous clots; and twice a small cretaceous mass was discharged.

When the patient left town, just three months after the commencement of the treatment, there was no longer any secretion from the seat of the disease or the abscess, and all trace of the tumour had long disappeared. The eyeball had fallen back nearly to the natural plane, although all its movements were not perfect. It could be directed downwards and outwards naturally, but not turned fully inwards, nor could it be raised to more than half its proper extent.

Art. 82.—*On Cysts in the Orbit.* By Mr. Poland.

(*Ophthalmic Hospital Reports*, No. 1, Jan., 1858.)

The following remarks are the comments appended to a case of orbital cyst:

"1. Cysts in the orbit are not such simple things as one might be disposed to call them. 'It is only a cyst in the orbit, and we will easily remove it for you,' may be the language of a surgeon to his patient. However, when he comes to reflect for a moment, he will find that the orbit, at the back part especially, is in close proximity to the brain and its membranes, and that the dura mater is in direct continuity with the orbital cavity; that these encysted tumours often extend as far back as that point, and some even pass through the optic foramen; and that injury or inflammation occurring to this cyst may by contiguity extend itself to that membrane, and onward to the brain, as seen in the present case. This untoward occurrence is by no means rare.

"2. The simple puncturing and laying open of the cyst is also not unattended with danger; in the first instance it may be followed by acute inflammation, which may extend to the cellular tissue of the orbit, and to the brain; or it may induce suppuration; or it may be followed by effusion of blood in its interior. Again, puncturing very seldom cures, as the sac rapidly secretes its peculiar contents.

"3. Complete excisions cannot always be accomplished; hence we

must remove as much as is within reach, without detriment to the eye or its appendages. In performing the operation, we must have a free opening; and there is no reason why we may not do this by an incision through the integument, where there is difficulty in accomplishing our object through the conjunctiva: this, of course, only applies to tumours of large size."

ART. 83.—*On Protrusion of the Eye connected with enlargement of the Thyroid Gland.* By Mr. POLAND.

(*Ophthalmic Hospital Reports*, No. 1, Jan., 1858.)

"Enlargement of the thyroid gland," says Mr. Poland, "does not always cause a protrusion of the eyes, as may be seen, at any time, among the several out-patients in the metropolitan hospitals; but, that it does so at times, cannot be disputed; and we can readily understand the cause. The enlarged gland may cause pressure on the jugular veins, and thus retard the flow of blood, which would produce cerebral congestion, were it not for the wise provision for the escape of blood from the cranial cavity. The ophthalmic vein is one of the most important ones; and should it have to perform this duty for a considerable length of time, it will necessarily become enlarged, and would, of course, tend to render the eyes prominent."

ART. 84.—*On the treatment of Tinea ciliaris.* By Mr. STREATFEILD.

(*Ophthalmic Hospital Reports*, No. 2, Jan., 1858.)

"In hospital practice," says Mr. Streatfeild, "the treatment of this disease is rather unsatisfactory. It is chronic, and of little inconvenience to the patients—the treatment is tedious, and they find the remedies difficult to be applied. To these neglected cases of long standing the following methods are well suited: In the first place, the expedient 'fomentations to be used frequently to the eyes,' ensures the necessary cleanliness, and is easily employed by the patients. To remove the old incrustations of the wide ulceration about the roots of the lashes, at first, I employ a pair of forceps, that meet only at their extremities, which are broad and blunt—the lid is steadied and slightly everted with one finger, and with the forceps the scab is seized close to the edge of the lid, and with slight traction, without closing the forceps, it is altogether detached, without bleeding, and with, perhaps, less pain than by any other means. It should not then be drawn over the whole length of the lashes, at the risk of removing them with it; but, when detached, left, and the lashes cut off close to their roots, wherever the disease exists. To obviate the apprehensions of some patients, it is advisable, before using the scissors, to bring them into contact with the skin of the lid for an instant previously. The lid should be then slightly everted, wiped with soft rag, and the whole of the raw surface on the outer edge of the lids (avoiding the Meibomian orifices) touched with the solid nitrate of silver. The scabs cannot accumulate again when the lashes are kept short, secretions are

readily removed, any application to the diseased surface is easily made, the risk of distorting or ultimately losing the lashes much diminished, and their future growth improved. The lashes are ready to fall out from the protracted ulceration at their roots, and (when they are not cut off), they are probably pulled out, and lippitudo is the result;* or by the drying of secretions, and cicatrization of the ulcers about the roots of the lashes, they are forced into abnormal positions, and trichiasis is the consequence. But another very common cause of inverted or otherwise distorted lashes, after the disease, is, I believe, the forcible and ignorant use of the local applications prescribed. The methods above advocated will be found to facilitate the ordinary treatment, to save the lashes, and to expedite the cure. After the caustic I generally order some simple ointment to be applied, night and morning, to the edge of the lids, and the ulceration is generally found to be inclined to heal."

Art. 85.—*On discoloration of the conjunctiva with Nitrate of Silver.* By Mr. Streatfeild.

(*Ophthalmic Hospital Reports*, No. 2, Jan., 1858.)

This has always been an occasional result of the employment of the nitrate of silver externally, in cases in which (if it had been before expedient) its beneficial agency is lost to the patient. When a prescription is given incidentally, the time for which it might be used should be fixed; and, when ordered for an hospital out-patient, but a very small quantity of the solution, each time, should be given. By photographers various means are adopted of changing or removing the blackened nitrate of silver, and it is a reasonable inference, from the experience gained in photography, that the hyposulphite of soda would obliterate the staining of the conjunctiva from the same cause. The stain has been called "indelible" by authors, but that these cases are remediable is at any rate proved by the following instance: A man who came to the hospital had been using, for twelve months, a nitrate of silver solution, which he had applied daily to the right eye, for a speck in the cornea, for which it had been prescribed originally. The discoloration was considerable; not only the lower part of the eyeball, the caruncle, semilunar folds, and palpebral conjunctiva were deeply stained, but the cornea itself had acquired a slight tinge, sufficient to modify the blue-gray colour of the iris, and to impart a decided tint to an incipient arcus senilis. The corneal opacity remained. Mr. Dixon first tried the effect of a solution of cyanide of potassium, beginning with five grains to the ounce, and, as this did not produce irritation, going on to double that strength. The solution was applied twice a day, by means of an "eye-glass," so as to ensure a prolonged contact with the conjunctiva. After several months, no improvement appeared to have taken place. Mr. Dixon then tried a solution of hyposulphite of soda (gr. x ad ℥j), applied in a similar

* The entire hair bulb is casually abstracted, when the scabs are removed; but usually it is left in the hair follicle, with a similar result, inasmuch as the cure of the disease obliterates the empty orifice.

manner. The patient has been using the latter remedy for two months, and, even with the weak solution, the improvement has been considerable; the conjunctiva has, in part, become of a natural colour, and the discoloration is altogether much reduced. The treatment is continued, with a proportion of the salt of double the strength of that originally ordered. It is probable that a still stronger solution of the hyposulphite of soda might be safely employed, for its use has hitherto appeared to cause no irritation.

ART. 86.—*On a very rare form of destructive inflammation of the Cornea requiring extirpation of both eyes.* By Mr. LAWRENCE, F.R.S., Surgeon to St. Bartholomew's Hospital.

(*Medical Times and Gazette*, May 13, 1858.)

In some clinical observations on the following case, Mr. Lawrence stated that this case, as far as his experience went, was unique; at least such had been the fact until within the last few weeks. About a fortnight ago he had seen, in consultation with Mr. Alexander, a lady somewhat past middle age, whose eye presented an exactly similar condition, and had, like those of the poor girl just removed from the theatre, been wholly lost by destructive inflammation of the cornea, unattended by apparent cause. In both cases the peculiar thrusting out of the globe had been observed, and in neither was there anything to account for it beyond the swollen condition of the cellular tissue of the orbit. In neither had there been any purulent discharge whatever from the conjunctiva, and in neither had suppuration taken place either in the globe or the orbit. The difference in the age and circumstances of the two patients made it evident that the disease did not depend on any special habits of life or particular period of life. In the girl's case, it was also remarkable that the second eye had been attacked so long after the first. She had meanwhile been fed up, had acquired a good appetite, and was in greatly improved health. Mr. Alexander had agreed with him that he had never before witnessed an example of similar disease.

CASE.—Ann Price, æt. 25, a domestic servant, was admitted on Jan. 2d. She had been sent to St. Bartholomew's from the Fever Hospital, where she had been an inmate for two days only, having been discharged because her disease presented no features of specific fever. She was a thin, pale, very cachectic woman. Her left eye was very prominent, and the conjunctiva in a state of chemosis, much swollen and very florid. The cornea was opaque and yellow, like wash leather, and beginning to slough. There was no purulent or other discharge. She complained of a most severe frontal headache. The account she gave was, that her eye had been inflamed only about ten days, and that during this time she had suffered most severe pain in the temple. She had been out of health, she said, ever since the summer, when a severe diarrhœa had much reduced her. Her eyes had also, she thought both of them, been more prominent since that illness than formerly, and her friends had also remarked upon the same circumstance. She had, however, been able to remain at her place until the present attack in the eye, at the onset of which the febrile disturbance had been so peculiar that the

case had, as observed above, been mistaken for one of fever, and she had consequently been sent to the Fever Hospital. There was nothing amiss with the right eye, excepting that it was noticed to be unduly prominent.

The destruction of the cornea in the left having rapidly become complete, and the eye being totally lost, Mr. Lawrence determined to remove the globe. This was done by the usual operation, about three weeks after her admission. At the time the eye was very prominent, and surrounded by swollen and everted mucous membrane. The iris and pupil were covered by layers of tough yellow lymph. During the operation nothing was observed to account for the extreme prominence of the globe; there was no abscess or tumour behind it. The globe on examination appeared to be healthy as regards all its structures excepting the destroyed cornea. No suppuration had occurred within it. Much relief to the frontal headache, etc., was obtained by the operation, but the conjunctiva still remained œdematous, and much swollen, so as to evert the lids somewhat.

About a week after the operation the right eye was attacked by disease exactly similar to that which had detroyed the left. The conjunctiva became swollen and dry, and the cornea dull. The latter was rapidly covered by a thick crust. On taking off this scab, a few days after its formation, the cornea was seen to be still perfect in form, though wholly opaque, and roughened and dry on its surface. It ultimately sloughed, and came away, exposing the whole iris.

Extirpation of this globe also having been decided on, the woman was again brought into the theatre on Saturday last (March 6). A scab of yellow lymph occupied the centre of the much protruded eye, concealing the iris, etc., and all around was a roll of red, dry, very tumid conjunctiva. After removal, it was found, as had been observed in the other, that the vitreous, retina, choroid, etc., were all apparently healthy, the disease being confined to the anterior parts.

Art. 87.—*On some points in the pathology and morbid anatomy of Glaucoma.* By Mr. Hulke.

(*Proceedings of the Royal Med. and Chir. Society*, Jan. 1st, 1858)

The ophthalmoscopic examination of many cases of glaucoma, and the dissections of several eyes affected with this disease, have furnished the facts detailed in this paper. Two chief forms of glaucoma have been long recognised: they are the acute and chronic, but a large number of cases occupy an intermediate position. The symptoms of acute glaucoma have been often and well described, but ophthalmoscopic signs are less widely known. They are: a dilated state of the retinal veins, often tortuous and turgid with blood; small ecchymoses scattered over the surface of the retina; occasionally small blood-clots in the vitreous humour; pulsation in the arteria centralis retinæ; and an excavated state of the optic papilla. These two last signs were, the author believes, first noticed by Graefe, who insists upon their being pathognomonic of this disease. Although in acute glaucoma the urgent symptoms often set in very suddenly, yet in a large number of cases the outbreak has been foreshadowed by a train of premonitory symptoms. These are: occasional dimness of sight, often towards evening, shooting pains in the eyeball, muscæ, and a gradual diminution of the field of vision. Graefe has drawn particular attention to

this last point. The outbreak may be followed by a remission, only a temporary improvement, for fresh paroxysms will occur, and blindness inevitably result. In the advanced stages sclerotic staphylomata are apt to occur, mostly behind the insertions of the recti tendons. Chronic glaucoma differs from the acute chiefly by the insidiousness of its course, which is unmarked by those violent symptoms which characterise the outbreak of the acute form. It is quite as intractable as the acute form. The retinal veins are turgid, and the retina is sprinkled with hæmorrhagic spots, just as in the acute form. Sometimes in the same person, one eye is attacked by acute, the other by chronic glaucoma. These facts favour the supposition that acute and chronic glaucoma are only different forms of the same disease. Graefe has called attention to a peculiar form of amaurosis, in which the optic papilla is excavated. This affection must be carefully distinguished from glaucoma, which may be done by observing that the globe is not tense, and the other signs of hyperæmia are also absent.

Morbid anatomy of glaucoma.—The small blood-spots which are sprinkled over the inner surface of the retina are small spots of capillary hæmorrhage. This condition was first recognised in glaucoma, by actual dissection, by Mr. Bowman. The bleeding proceeds from capillaries in the inner layers of the retina, and the blood either spreads laterally amongst the elementary structures of the retina, or, bursting through the hyaloid membrane, it forms small clots in the vitreous humour. The retinal capillaries are irregularly dilated and studded with small fusiform and globular enlargements—little aneurismal pouches. These dilatations do not occur on the large vessels. The pouches and the vessels communicating with them are usually crammed full with blood-corpuscles. In the hæmorrhagic spots the retinal tissues are infiltrated with blood-discs, which have escaped by the bursting of some of these little aneurismal pouches. Excepting the changes described above, the retinal capillaries have a healthy appearance, and do not present traces of fatty or atheromatous degeneration. The coats of the arteries are hypertrophied. The *vitreous humour* sometimes has a yellow tinge, which is derived from the colouring matter of the effused blood. It often contains blood-discs and delicate fibrinous webs; and sometimes also small blood-clots, which can be clearly seen with the unaided eye. The vitreous humour has a very remarkable degree of consistence, and does not quickly flow off when the eyeball is cut across. Viewed by transmitted light, the glaucomatous lens has a yellow tint like the vitreous humour, and which is probably acquired from the same source—viz., the colouring matter of the effused blood. The relations of the lens and the vitreous humour favour this supposition. In none of the dissections were any morbid changes found in the choroid, unless when staphylomata were present. Corresponding with the staphylomata, the choroid, retina, and sclerotica preserve their native relations to one another, and are not separated by any effusions. The choroidal pigment is irregularly distributed; the tissues seem opened out. The subsequent changes in the retina and choroid, in the advanced stages of the disease, have an atrophic character. The dilated retinal capillaries and their contents have been found dark and granular, in a state of fatty degeneration,

and the contiguous parts of the retina participate in these changes. The symptoms, the ophthalmoscopic signs, and the structural changes which take place early in the disease, all point to a state of great vascular excitement in the retina, and a greatly increased internal pressure upon the walls of the globe. It is this pressure which causes the blindness in the early stage of the disease, and the fixed dilated pupil, for when the pressure is relived by operation, sight and mobility of the pupil return.

ART. 88.—*New operation for artificial Pupil.* By Mr. CRITCHETT.

(*Medical Times and Gazette*, May 3, 1858.)

"Mr. Critchett has recently adopted, at the Moorfields Ophthalmic Hospital, a mode of operation, where it is wished to displace the pupil, which is, we believe, novel. Instead of drawing out and snipping off a portion of iris, he draws it out and secures it by a fine ligature from slipping back. It may, perhaps, at the first mention seem that the result must be nearly the same as if the scissors were used, since the portion included in the ligature will slough away. There is, however, another point in Mr. Critchett's proposal which indeed constitutes its main feature. It has long been an aim with ophthalmic surgeons to discover some mode of operating by which the natural pupil should be simply displaced to the elected position without laceration of its margin. This was the end sought to be obtained by the ingenious suggestion of a surgeon of Nantes, to remove a small portion of cornea near its circumference, and then allow the iris to bulge and become adherent to the cicatrix. This latter mode of operating has been frequently adopted of late by Mr. Bowman and other English surgeons, and we have seen some excellent pupils obtained by it. It is of course the substance of the iris near its circumference which bulges into the wound, not its pupillary edge. Now, Mr. Critchett aims to exactly imitate this process, with the advantages that no portion of the cornea is excised, and that the result is much more certain. Having made an incision close to the corneal edge sufficient to admit of Leur's forceps, the iris is seized just within the opening (that is, very near to its attached border), and is gently drawn out until enough is prolapsed to allow of the application of the ligature. The ligature prevents all chance of the return of the iris which might otherwise follow. Mr. Critchett has now performed it in four instances, and last Friday, Mr. Bowman also adopted it in a case under his care. It is, of course, best adapted for cases of leucoma, &c., where the iris itself is not diseased. If the pupil have strong adhesions, one or other of the numerous older methods would be better suited."

Art. 89.—*On the operation of Iridectomy.* By Mr. T. Wharton Jones, f.r.s., and Dr. Mackenzie.

(*Medical Times and Gazette*, April 3, 1858.)

This paper is a criticism on the operation of iridectomy, or excision of a piece of the iris, as recommended by Dr. Graefe, of Berlin, as a means of cure in various diseases of the eyes, especially chronic iritis, irido-choroiditis, and glaucoma. The writers are altogether at variance with Dr. Graefe. "Dr. Graefe's practice of iridectomy," they say, "appears to us so opposed to the plainest principles of surgery and common sense, and so little supported by its results, that we must confess our surprise at its having been so eagerly imported into this country. We have no doubt, however, that in a short time iridectomy as a means of treating glaucoma will be abandoned; while the attention of practitioners having been redirected to the effect of taking off the intraocular pressure which plainly exists—not, however, as the primary, but as one of the secondary phenomena in glaucoma—the practice will be revived of more frequently puncturing the cornea and sclerotica in this disease."

Art. 90.—*A peculiar disease of the Retina.* By Dr. Bader.

(*Ophthalmic Hospital Report*, No. 2, Jan., 1858.)

Dr. Bader's chief object is to show that the retina is the seat of a special form of disease, in which the other textures of the eye do not participate, except secondarily and remotely, and to separate it from the vague class, Amaurosis. I should propose to name it, "Softening of the Retina." Once familiar with the *peculiar appearance of the optic nerve entrance*, the disease can be recognised in its earliest stages, and is open to treatment. The objective symptoms are, when far advanced, well marked, but for the diagnosis, I believe the appearance of the optic nerve entrance to be sufficiently characteristic. The more advanced the disease, the more marked is the grayish-blue appearance, and the less is the supply of blood; and the more do the vessels give the impression of being bent over the edge of the optic nerve entrance. The pulsation not unfrequently seen in the vessels may be caused by the blood overcoming the resistance it finds at the bend.

Another feature, though not constant or peculiar to these cases, is the distinctness with which the insular arrangement of the hexagonal pigment is seen on the red choroidal field. It may be owing to a change of position of the rods, produced by the disease in the nerve cell-layer of the retina; the last of the above cases shows how complete the retinal transparency remains to the ophthalmoscope while the destructive changes are progressing in its substance.

Mr. Bowman, I believe, first discovered the change of position of the bluish-gray crescent in the optic nerve entrance, on movements of the eye. This symptom will be understood by considering the shadow thrown by a moveable, concave, light reflecting surface.

The disease, when far advanced, causes opacity of the lens, and similar changes consequent on pressure in the cornea and sclerotic, and in the ciliary circulation. If we add, pain, sudden increase of hardness of the globe, and other active inflammatory symptoms to the above sketches of the exterior of the eye, then we have what is called "Acute Glaucoma."

The present surgical treatment of these cases, as employed by Mr. Critchett and Mr. Bowman, tends to decide which cases will be improved by excision of part of the iris. Acute cases have decidedly been improved, not so chronic ones.

The ophthalmoscope recognises the above disease in its earliest stage. Will the surgical treatment be more successful when applied early? or, is it only serviceable when inflammatory symptoms join the chronic state? or, is acute glaucoma a different disease altogether? The marked difference of success of the surgical treatment, as applied to apparently the same class of diseases leads to the above questions. Cases similar to the above, and accessible to the ophthalmoscope, will, I believe, be the most favorable to allow of accurate and conclusive experiments.

Dr. Bader relates three cases, of which the following is one.

Case.—*History.*—October 9th, 1857. W. F—, æt. 34, gardener, observed, nine years ago, on stooping, a dimness appear before both eyes. The dimness increasing, he underwent various medical treatment, comprising blistering, cupping, leeching, mercury, and tonics, during which, at the end of twelve months, vision was reduced to mere perception of light; this state continued up to April 22d, 1857, when the patient came under the care of Mr. Critchett; he then had perception of light, most in the left eye, but not sufficient to enable him to find his way about. Periodically he saw more light, especially in the mornings and evenings. Before and during this eye-disease the patient enjoyed good general health, and at no period of his life had had either inflammation or pain in the eyes or in the head.

Present symptoms.—Both eyes. October 9th, 1857. Slight external strabismus; the globes a little harder than normal, the sclerotics of a dirty grayish white colour, large veins emerging from the ciliary region, general slight haziness of the cornea, the iris of a clear brown colour. Both pupils irregularly dilated and immoveable, their area slightly misty. April 22d, 1857. The corneæ transparent and the area of the pupils clear.

Ophthalmoscopic examination.—Both eyes. April 20th, 1857. The media transparent, the choroids of a deep red, with many brown pigment-islands, the entrance of the optic nerve too well-defined, with a dotted bluish-gray watery appearance of its surface, most marked at its outer edge. At the upper part of the periphery of the left optic nerve, some irregularly defined white patches dotted with pigment. Three very small vessels pass through the centre of the right optic nerve, and disappear at its periphery. Four veins returning from the retina, of normal diameter and colour, pass out of the eye close to the periphery of the entrance of the optic nerve. Through the left optic nerve four thin vessels pass and spread over the retina, and two large veins terminate abruptly, as in the right eye. October 9th, 1857.

Right eye. The haziness of cornea and lens prevents the light from entering the depth of the eye freely. On a dimly red field the dirty, bluish-gray well-defined surface of the entrance of the optic nerve is seen, with two thin vessels passing through its centre, and disappearing at its periphery. Left eye,—the cornea and lens slightly misty, the state of the parts behind, as on the 22d of April. A good sketch of the entrance of the optic nerve, and the neighbouring parts, may be seen at the hospital.

Treatment.—From April to October, tonic treatment. October 9th. Graefe's operation was performed by Mr. Critchett on the right eye. November 19th. The patient thought he saw more light with the eye operated on. The case is still under treatment.

ART. 91.—*The cataractous Eye Compressor: a new instrument for facilitating the extraction of Cataract.* By JAMES VOSE SOLOMON, F.R.C.S., Surgeon to the Birmingham and Midland Counties Eye Infirmary.

(*Lancet*, Nov. 7, 1857.)

In the removal of hard cataract from the axis of vision by extraction, after the section of the upper half of the cornea has been completed (in the right eye), and the capsule of the lens has been sufficiently opened, the operator, in order to dislocate the cataract through the pupil, raises the upper lid with the forefinger of the left hand, and with the "curette" in his right, makes pressure with the spoon end of that instrument upon the globe, at a point about midway between the lower margin of the cornea and the insertion of the inferior rectus muscle.

It will, however, sometimes happen, notwithstanding the corneal and capsular incisions have been properly executed, that the cataract does not come forward, but slips behind the iris, or perhaps sinks more or less deeply into the vitreous humour. Under these circumstances it is usual, and a very good practice, to get an assistant to harpoon the lens with a small and sharp hook, and then gently withdraw the cataract through the pupil and the corneal incision, care being taken not to evert the flap to such an extent as shall favour an escape of the vitreous. This manipulation to be safely performed requires that it shall be executed by the steady and delicate hand of one who has been practically instructed in the operation under consideration. But such a one is not always at hand. I have therefore been led to devise and make use of the instrument, which consists of a cup of thin metal, with four elastic ribs attached to it, which fits on the end of the second finger; to the centre of the cup is riveted a curved stem, something less than half an inch in length; this stem terminates in a transverse bar, which is concaved, and set on at such an angle as will render it easy of adaptation to the globe of the eye.

Either silver or steel may be used for the cup and ribs. Each rib should be hollowed, so as to give it strength and elasticity.

It will be obvious to those accustomed to operate for cataract, that

the upper lid can be elevated and fixed with the index finger, and pressure made upon the eye-ball by the second finger of the same hand, arched in front of the eye, and having attached to it "the compressor." From the trials I have made with it, I believe that in the operation of extraction the surgeon will gain by its use an equivalent to a third hand. It is less painful to the patient than Daviel's spoon. The exact amount of pressure exerted is accurately appreciated through the tactile sensibility of the end of the finger. Moreover, by placing the stem of the hook held in the right hand just behind the upper part of the incision, a useful degree of counter-pressure can be made; and should the cataract not then come forward, or should any untoward accident threaten, the hook can be used to seize the cataract at the precise moment and in the exact mode that the operator may deem advisable. In fact, one mind will direct the whole of those manipulations, which demand skill and knowledge for their perfect execution.

P.S.—I have had made several instruments, which were modifications in detail, but not in the principle of the one delineated on this page, but prefer the elastic ribs to a flat ring of metal, and the curved stem to a straight one set on obliquely to the cup.

Art. 92.—*On Micropia produced by the use of Belladonna.* By Dr. Cornaz, of Neufchâtel.

(*L'Echo Méd.*, and *Dublin Hospital Gazette*, March 15, 1858.)

Of late years the medical journals have detailed several cases, in which a solution of belladonna, dropped into the eye, has caused a very curious phenomenon, making all objects appear very much smaller than natural. For this affection Donders has proposed the name of *Micropia*—one, certainly much more suitable than Microscopia, by which it has been hitherto called. This affection appears to be of very rare occurrence; for, not to mention the numerous cases of poisoning by belladonna—in none of which as far as we are aware, has it been noticed—the solution of belladonna, or atropine, is daily used to examine the interior of the eye, and nevertheless we cannot discover that micropia from mydriasis produced by the poison of the solaneæ has been described before 1851.

Without investigating the explanations hitherto given for this fact (which all fail in this—that if they were correct, this lesion ought to exist, at least more or less, every time that an artificial mydriasis existed) or dwelling on the line of treatment insisted on (which is only waiting until the belladonna ceases to act, or, at the most, applying cold lotions) we will detail here the particulars of some cases of this kind which we are acquainted with, because it is important that every surgeon should know exactly, not only the normal effects of every remedy which he makes use of, but those also which it may produce in exceptional cases.

Case 1.—In some cases objects appear smaller than they are in reality. The cause of this anomaly has not been clearly proved. It occurred once,

in a very decided manner, in my right eye, after a few drops of solution of belladonna, which has the effect of diminishing the refractive power of the eye, were dropped into it. In reading with both eyes, the left alone accommodated itself to the true distance, whilst the right, though open, interfered with my seeing clearly. When I closed the right, I saw perfectly; when I closed the left, I saw equally well at the distance of about a foot; but I had to make some effort to do so, and the letters appeared to me much smaller. When the belladonna had exhausted its action, this anomaly disappeared.—*Donder's Nicropie*—'*Nederlandsch Lancet*,' 1850-1, No. 10, *Avril*.

Case 2.—M. J. V—, æt. 40, of good constitution, never ill before, was for some time annoyed with *muscæ volitantes*. The eyes showed nothing abnormal; there was no unusual vascularity; the pupil was moderately dilated, and very active; his present health perfect. There was no pain either in his eyes or head. The patient makes no complaint, except of the *muscæ volitantes*, which are attributed to slight congestion of the retina.

To allow of more complete examination of the organ, a few drops of a solution of extract of belladonna were dropped into the eye in the evening. He passed a very good night, and on waking was astonished to find that all the objects around him had assumed a new appearance. The newspaper lay on a table near him, and on taking it up, it appeared to be composed of microscopic characters, which he could only decipher with great trouble, and thanks, he said, to his always having had excellent sight. However, objects appeared as clear as usual; they were not surrounded with a haze, or with luminous areolæ; their size alone was remarkably diminished. He rang the bell, and the servant who answered it appeared to him not taller than a girl of ten years old. He started up, more and more astonished. The clothes which he takes up are those of a child; however, he puts them on without any trouble. He goes down to breakfast, and instead of his wife and children seated around the table, he sees only a little dwarf and some dolls. His surprise and fright are extreme; he hurries off to his physician, but will not go alone, so great is his fright. The horses he meets appear to him dogs; the dogs rats. In a word, everything around him appears to him borrowed from the Lilliputian world—created by the imagination of the immortal author of 'Gulliver's Travels.' During this time an examination of the eye only shows considerable dilatation of the pupil; nothing abnormal in any other part of the organ. Cold lotions were applied, and after the following day everything was restored to its original condition, except the *muscæ volitantes*, which persisted.—*Warlomont d'une propriété peu connue de la belladone en instillations dans l'œil.*—'*Annales d'Oculistique*,' *t.* xxix. (1853).

Case 3.—A respectable tradesman was for a long time suffering from ophthalmia, which resisted all the measures used to subdue it. Tired of not gaining any relief, he applied to a quack, and got in return for his money a small bottleful of an infallible eye-water, of which he was to drop one or two drops into the affected eye.

At bed-time he followed accurately the pretended oculist's directions, and fell asleep. On waking the next morning, he found himself, to his great surprise, in a most diminutive room, lying in a Lilliputian bed, which, however, appeared too large for him. Astonished at the sudden change, he rang the bell, and instead of his usual attendant he saw a little girl come in, who appeared not to understand one of his questions. He then looked for his clothes, but, like everything else, they were of ridiculously small size. These trowsers and this coat, thought he, will never be of much use to me; and yet he got into them with perfect ease. When he went down to the breakfast-

room, where his wife and daughter were waiting breakfast, he thought he saw two puppets seated at a table which seemed to him some toy. In fact, he saw everything as if he was looking through an opera-glass reversed. Naturally alarmed at these persisting errors of vision, he sent, in a great hurry, for his physician, who ascertained that he was attacked with a very rare affection known as *microscopia*. The oculist's drops had contracted the visual power of the optic nerve. A prolonged treatment restored the power of vision, but it has continued weak; and the man will long regret the confidence he placed in the vender of charms.—'*Journal de Méd. Chir. et Pharmacie, de Toulouse,' Mai*, 1857.

"Dr. Hosack of Amsterdam," says Dr. Cornaz, "has furnished me with the following case:

A Dutch lady, æt. 50 years, of a nervous temperament, subject to congestion of blood in the head (caused probably by her menstruation not being regular of late,) and neuralgia of the trifacial nerve, particularly of the supra-orbital branch, which tormented her excessively, asked my advice about a dimness of sight to which both her eyes, but more particularly the right, were subject. Examination showed that she had commencing presbyopia, complicated with slight amblyopia. In order to examine the interior of the right eye by means of the ophthalmoscope, I dropped into it one drop of a solution of sulphate of atropine, which enabled me to discover a commencing cataract.

But it struck me as remarkable that the patient said to me at the time that with this eye she saw objects smaller than natural, which gave her not a little uneasiness, and did not disappear until about six months afterwards. This lady lives in the country, and I did not see her a second time. This micropia persisted, although the pupil had some days afterwards resumed its natural size and mobility.

Although these are the only cases of the kind which I can of myself describe, the phenomenon has not been unnoticed by other physicians, among whom, besides Warlomont, we may reckon M. Sichel, of Paris, and M. Van Roosbrœck, of Ghent.

Would the micropia cease if the subject of it were to look through a very small opening, such as a pin-hole in a card? We are inclined to think it would, and invite those who may meet with such cases to try the experiment.

Would the phenomenon be reproduced every time that a fresh drop of the solution of belladonna were dropped into an eye which had once been so affected? Very probably, for if we are not mistaken, its existence depends on a form of idiosyncracy. This word gives no explanation of the thing which it designates, but we understand by it the unusual symptoms which this or that substance produces in certain individuals; symptoms which have no relation with those which the same substance produces on the majority of people. It is thus that strawberries produce vomiting in some persons—an effort of the constitution to get rid of a poisonous substance; mussels, also, are said to produce uticaria in particular individuals; and an Italian journal relates the case of a conscript who was obliged to be invalided because he could not bear the yeast contained in the bread: certain odours constantly produce syncope in certain persons, &c., &c.

It appears to me that micropia, from the use of belladonna, belongs altogether to this category of phenomena, inasmuch as it is not an exaggeration of the symptoms usually produced by this drug, but an occurrence altogether extraordinary.

Such would not be the case if intoxication or some general effect was produced in some few cases by the local application to the eye of narcotic substances, such as belladonna, (Chassaignac,) and opium, (Wurtzer and Von Ammon); in fact we would only see in that case increased susceptibility of the constitution to the medicines. Whatever be their exact nature, both micropia and the possibility of intoxication consequent on the employment of collyria of atropine, are two rare facts, of the possibility of the existence of which it is right that every physician should be acquainted."

ART. 93.—*On anchylosis of the stapedio-vestibular articulation, associated with rheumatism and gout, and based on* 136 *dissections.* By Mr. TOYNBEE, F.R.S.

(*Proceedings of the Royal Med. and Chir. Society*, March 23, 1858.)

The author commenced his paper by showing that there is a distinct joint between the circumference of the base of the stapes and the inner surface of the fenestra ovalis, and that this stapedio-vestibular joint (perhaps more constantly used than any other in the human body) is very subject to be affected with rheumatic gout (rheumatic arthritis), producing in various stages of its progress various degrees of deafness. He considered the poisons of gout and rheumatism to be thus far identical in their nature, that they both consist of an excess of the nitrogenous element of the blood, and that this nitrogenous element in the case of rheumatism is fibrine, and in that of gout albumen. The view that the element in the blood causing rheumatism is fibrine in excess, was supported by the following facts:—1. That this fibrine is found in great excess in the blood of rheumatic patients, that Lehmann asserts that of all diseases the fibrine is in general increased in the largest proportion in acute articular rheumatism and pneumonia. 2. That this excess of fibrine also manifests itself by the excess of urates eliminated from the blood in patients with the so-called rheumatic diathesis. 3. That attacks of acute rheumatism come on contemporaneously with the inability of the system to use the excess of fibrine in the blood, and to eliminate the excrementitious urates. 4. The attack of rheumatism is produced by any cause which prevents the conversion of the fibrine of the blood into fibrous elements of muscles and other fibrous organs, and the due elimination of the urates. 5. In cases of acute rheumatism, the excess of fibrine in the blood finds an outlet in fibrinous effusions; whilst in chronic rheumatism it finds an outlet in hypertrophy of the fibrous structures. 6. All curative measures for rheumatism do good in proportion as they cause the excess of fibrine to be eliminated in the form of urates or consumed in the process of assimilation. 7. All preventive measures in rheumatism consist in

the use of dietetic or other hygienic rules, whereby the entrance of an excess of fibrine into the blood is prevented, or when it is introduced that it may be assimilated, and the effete matter eliminated as urates. That the nitrogenous element in the blood which causes gout is albumen in excess, was indicated by the following facts:—1. Whether known to us as globuline, gelatine, chardine, gluten, etc., the textures containing albumen are those implicated in gout. These textures may be divided into four classes:—the blood-cells, containing globuline; the cellular, mucous, and purely serous membranes, containing gelatine; the cartilages containing chondrine; and the cartilage of bone, gluten. 2. That globuline, the coagulable matter of the blood-cells, is more abundant in plethoric gout, and that one source of the increased quantity of uric acid in the blood of some gouty patients may be ascribed to the increased quantity of globuline in the blood. 3. The food inducing an attack of gout is usually peculiarly rich in albumen. The analogies and differences between gout and rheumatism are thus presented in a tabular view:—

GOUT.

Causes.

1. *Predisposing.* An excess of the nitrogenous element of the blood, probably albumen from the use of too highly nitrogenous, or from mal-assimilated food.
2. *Exciting.* The sudden addition to the blood of so large a quantity of albumen that it can be no longer assimilated, and becomes a poison; or any circumstance, as fatigue, which prevents this assimilation, and consequently the elimination of the urates. The effort to rid the system of all poison constitutes the attack of gout.

Seat. .. *Vesicular Tissue.*

1. Cellular tissue—as bone, cartilage, or cellular membrane.
2. Mucous membrane—as the lungs, liver, stomach, kidney, &c.
3. Serous membranes — as pleura, peritoneum, arachnoid, synovial membranes, &c.

RHEUMATISM.

Causes.

1. *Predisposing.* An excess of the nitrogenous element of the blood, probably fibrine, from the use of too highly nitrogenous, or from mal-assimilated food.
2. *Exciting.* The sudden addition to the blood of a large quantity of this element, or any circumstance, as the application of cold, which prevents the assimilation of the element and the elimination of the urates. The violent effort made to rid the system of the poison constitutes attack of acute rheumatism.

Seat. .. *Fibrous Tissue.*

1. Muscular fibre.
2. Hard fibrous tissues—as tendons, aponeuroses; fibrous visceral envelopes, as the fibrous layer of dura mater, pericardium, synovial and other serous membranes.

The author then showed that in the disease properly called rheumatic gout, both fibrous and vesicular, otherwise named fibrinous and albuminous structures, are affected; and he was thus led to consider the diseases of the stapedio-vestibular articulation, in which both fibrous and vesicular structures are affected, as constituting what is called ordinary rheumatic arthritis, or rheumatic gout. The author then proceeded to describe and classify the 136 dissections laid before the Society, of rheumatic gout causing anchylosis in the stapedio-vestibular articulation.

In 49 cases there was simple expansion of the articulating border of the base of the stapes; in 29 there was expansion of the articular border of the base of the stapes, with calcareous whiteness; in 25 there was expansion of the whole of the base, and effused bone connecting it to the vestibule; in 21 there was osseous matter effused between the stapes and the fenestra ovalis, producing simple anchylosis; in 12 there was osseous matter effused around the fenestra ovalis. In addition to the 136 specimens of bony anchylosis, the author alluded to 53 dissections of membranous anchylosis, the particulars of which had been previously laid before the Society; in the latter cases the ligaments of the stapedio-vestibular articulation had become more rigid than natural. The author stated that rigidity of the ligaments, which is the usual morbid condition in cases of deafness in advancing years, may, as a general rule, be diminished.

In speaking of the diagnosis of the disease, the author stated that there is usually what is called the uric-acid diathesis. Frequently the patient has had an attack of rheumatism, gout, or rheumatic gout. but the only symptom in the ear is gradually increasing dulness of hearing, usually worse during a cold, the adapting power of the ear being the first to be diminished. There is usually an absence of the distressing noises present in debility of the nervous apparatus of the ear. The mucous membrane of the fauces and nose is congested and tumefied, the membranous meatus auditorius is also red, and often tumefied. The osseous walls frequently present rounded bulgings. The membrana tympani is often opaque and dull on its surface. If the ligaments only are affected, as they are in the earlier stages of the disease, or if the circumference of the base of the stapes be merely slightly expanded, considerable benefit may be obtained by persevering treatment. This treatment consists in the use of general remedies, whereby the poison of rheumatism and gout is removed from the blood, and in the local application of counter-irritants. In the later stages of the disease, when bony anchylosis has taken place, no benefit can be attained further than the removal of the symptoms arising from congestion. The paper concluded with a recital of case illustrative of the disease, with details of the pathological conditions found in some upon dissection.

ART. 94.—*On enlarged Tonsils.* By Mr. PAGET, F.R.S.

(*Medical Times and Gazette*, Feb. 6, 1858.)

Speaking of enlarged tonsils and their treatment, in some notes of practice among the out-patients of St. Bartholomew's Hospital, Mr.

Paget says—"There is a physiognomy by which the children and young people that have simple enlargement of the tonsils may usually be known at once. Together with a general appearance of feeble health they have a peculiar shape of the mouth and jaws. The jaws are narrow, so that the teeth are crowded and look disproportionately large. The aperture of the mouth is small, habitually slightly open; the edges of the lips thick, but not pouting, the lower lip rather inverted; the angles of the mouth a little raised; the front of the mouth is almost uniformly convex; the lower lip scarcely recedes towards the chin, but projects with a broad convexity, as if its middle part were slightly pushed forward by the tip of the tongue. The general expression is that of a gradual narrowing and a smooth uniform rounding of the lower part of the face, which make it look small and featureless.

"These peculiarities of shape appear due, partly to defective growth of the jaws, and partly to the habit which the patients have of advancing the lower jaw and tongue, in the position in which these parts are yet more evidently held during acute inflammation of the tonsils.

"For chronic enlargement of the tonsils, whether through simple over-growth or in consequence of chronic inflammation, the excision of the projecting portions seems by far the best treatment. So far as I have seen the cutting of tonsils is never followed by severe hæmorrhage or other serious inconvenience, provided they are not inflamed at the time of being cut. And I believe that if other means of reducing the size of enlarged tonsils be not quickly beneficial, the excision should be adopted both oftener and earlier than it commonly is. One frequently sees cases in which delay in operating has given time for the occurrence of the incurable "chicken-breast" deformity of the chest, which Dr. Warren pointed out as a common result of the habitual hard breathing of children with enlarged tonsils.

"The double vulsellum and common probe-pointed bistoury are, I believe, the most advisable instruments for this operation, because, among other reasons, they are equally fit for all cases. There are certainly some cases for which even the most improved guillotines are insufficient instruments; those, namely, in which the enlargement of the tonsil extends so far down by the side of the pharynx, or up towards the soft palate, that a fair portion of the disease cannot be taken within the ring or loop of the guillotine. For these broad-based enlarged tonsils the knife alone is applicable; and, to remove them effectually, it is advisable to have a facility which will hardly be possessed if the knife be used for them alone, but which the hands accustomed to the cutting of common enlarged tonsils will seldom lack. The general direction for the operation must be to cut from below upwards, the blunted point of the knife being carried well backwards, and its edge just internal to the posterior arch of the palate."

ART. 95.—*On lesions of the Epiglottis.* By Dr. HORACE GREEN.

(*New York Journal of Medicine*, Nov., 1857.)

The following are the conclusions of a paper recently read before the New York Academy of Medicine:—1. The epiglottic cartilage is subject to serious alterations of structure, which, it is believed, have not received that attention in practical medicine which their importance demands. These lesions, which are ordinarily the results of inflammation, are *erosions* of the mucous membrane of the epiglottis, *ulceration* of the membrane and its glands, and *œdema* of its areolar tissue. Both erosions and ulcerations, although occasionally found associated with tuberculosis, are often found to exist as primary disease, being the antecedent, and, in many instances, the exciting cause of other grave affections. 3. Erosions occur much more frequently than ulcerations, and differ from the latter in being much more superficial, as they are confined to the mucous membrane, and ordinarily to its epithelial layer. 4. Primary ulcerations of the epiglottis are alterations of structure, differing essentially from erosions. They originate apparently in the follicles of the mucous membrane, which soften and ulcerate, and, penetrating the fibro-cartilage, ultimately destroy a portion of the epiglottis, and, if not arrested, prove the cause of much more serious disease. 5. Œdema of this cartilage is a lesion of somewhat frequent occurrence, the result, ordinarily, of catarrhal inflammation. It is attended generally with loss of voice and difficulty of deglutition, and is occasionally complicated with ulcerations of the cartilage, by which, in some instances, the epiglottis has been completely destroyed. 6. The epiglottis, which is almost insensible in its normal state, becomes, when diseased, frequently the source of great irritation to the more sensitive adjacent parts. The presence of this cartilage is not indispensably necessary to secure deglutition. It is necessary, however, to render this act perfect. But its most important function is to cover over and protect that exquisitely sensitive portion of mucous membrane which occupies the supra-glottal space, and which is the true sentinel at the glottic opening. 7. But the most important practical conclusion found in these propositions is, that some of the lesions which have now been described are often, it is believed, not only among the earliest manifestations of thoracic disease, but are themselves, in many instances, the true *exciting causes* of these affections; and, furthermore, this postulate once established, that we have it in our power, by timely topical medication, to positively arrest cases of disease which otherwise would, and in many instances do, terminate fatally.

ART. 96.—*Rupture of the Trachea from a fall.* By Dr. ATLEE.

(*American Quarterly Journal of Med. Science*, Jan., 1858.)

But few cases of this kind are on record. Dr. Atlee refers to two only: one reported by Ryland, in his treatise on 'Diseases and Injuries

of the Larynx and Trachea,' the other related by Mr. Robertson, in the 'Lancet' for September 6th, 1856.

Case.—On the 22d of July, 1856, a boy, four years of age, in running across the street, tripped at the kerb-stone and fell, striking his neck with force against the scraper at the side of the door of his father's house. The blow caused for a few moments extreme difficulty of breathing, and Dr. Atlee was sent for. He (Dr. Atlee) reached the house not more than five minutes after the injury had been received. The child was then seated upon his mother's lap, his head resting against her arm, and breathing naturally, or nearly so; there was some blueness of the lip, but this soon passed off; on his countenance there was not much appearance of distress. Where the neck had come in violent contact with the scraper there was not the slightest mark upon the skin. Dr. Atlee was about to congratulate the family upon the slightness of the injury, when the child, struggling to free himself from his mother's arms, threw himself violently backwards. He at once became enormously swollen, and in a moment was dead. The cause of the swelling was due to the entrance of air into the cellular tissue, and it extended over the head, the neck, the trunk, and the upper extremities to the ends of the fingers. At the sternum, the finger, before reaching the bone, penetrated fully an inch. It was unfortunate that a post-mortem examination was not permitted, but the evidence afforded by Dr. Atlee is, we think, conclusive. He shows that when the neck had struck the scraper, the rings of the trachea had been separated from one another, but that they had remained in place until dislocated by the act of throwing the head backwards. When this occurred, the air contained in the lungs was forced violently into the cellular tissue of the body.

Art. 97.—*On the treatment of suppurated Cervical Glands.* By Mr. Paget, f.r.s.

(*Medical Times and Gazette*, Jan 2, 1858.)

In the notes of practice among the out-patients of St. Bartholomew's Hospital, to which reference has been already made, are the following remarks:

"The great number of strumous children, that come to out-patients' rooms with slowly suppurating cervical and other lymphatic glands, supply, I believe, evidence enough that the best plan in all such cases is to leave the suppuration to increase till the skin over it is so thin, that one might think that in a day or two spontaneous ulceration would ensue. The thinnest part of the skin should then be punctured with a small knife, so as to make an opening not more than two lines in length. Through this opening the pus should be allowed to flow out slowly: the abscess-walls should on no account be pressed. If the pus will flow in mere drops, it is well; if it stop altogether, no harm will follow. No more should be done than to cover the abscess with a soft poultice or with warm water-dressing, which should be removed twice or three times a-day. The abscess thus treated will slowly empty itself, as the inflamed and stretched skin slowly recovers its elasticity and contractile power; or if the little wound should heal before the emptying, it will in a day or two reopen; or, at the most, the puncture may need to be repeated. The advantage of the plan

is, that the punctured skin does not ulcerate or slough, the abscess-wall does not inflame, and recovery ensues without disturbance of the general health, and with a scarcely visible scar. In the great number of cases that I have thus treated, I do not remember to have failed to obtain these advantages. Usually, the healing of the abscess is completed within three weeks—in strong contrast, both as to time and manner, with the tedious healing and ugly scarring that often ensue when these abscesses are left to open spontaneously, or are opened widely with the knife or caustic.

The internal treatment which I have always employed in these cases when suppuration has taken place (and which, if any, will prevent its occurrence), is the giving of tonics, or iron, and good food. The medicines for children may be, according to the case, from two to five grains of the potassio-tartrate of iron, or from five to ten grains of the liquor cinchonæ, or a drachm of the cod-liver oil, three times a-day. The first I think best in ordinary cases, in which the characters of struma are well marked, and not complicated; the second appears best when with struma there is marked debility, drooping, deadly pallor, duskiness; and I think it is a very good plan to give the bark with lime-water: the third seems fittest when great emaciation exists. In all cases it appears useful to give occasional small doses of the hydrargyrum cum cretâ, with rhubarb or the sesquioxide of iron. I doubt whether iodine does good in any of these cases, unless in combination with iron."

(B) CONCERNING THE CHEST, ABDOMEN, AND PELVIS.

ART. 98.—*A new bandage for fracture of the Clavicle.* By Dr. JULIAN CHISHOLM.

(*Charleston Med. Journ. and Review*, March, 1858; and *American Journal of Medical Science*, April, 1858.)

Dr. Chisholm describes a simple, and what seems to be, at the same time, a very efficient bandage for fracture of the clavicle.

The bandage is formed of a strip of cloth, from three to five feet long, and from eight to eighteen inches wide (according to the size of the patient), which is slit from both ends in such a way as to leave a bridge from one to two inches wide in the centre, connecting the two lateral half strips. A soft pad having been placed in the axilla, to act as a fulcrum upon the riding fragment, the affected arm is carried over the chest, the palm of the affected hand resting upon the side of the thorax, under the border of the opposite armpit. This position of the arm removes all deformity, and brings the fragments in apposition. The centre of the bridge of cloth is now placed under the elbow, the superior strip, which covers half the height of the affected arm, is made to encircle the chest; one end is carried forward, the other backward, to meet the opposite armpit, where, after enveloping the hand, and being firmly drawn upon the affected arm, they are secured with needle and thread, pins, or an ordinary knot. The in-

ferior strap, which is placed under the affected arm as a sling, is made to traverse the chest in the same way, the ends meeting over the opposite shoulder, where they are secured by the same means. If at the several points where the strips cross each other, a stitch or a pin is placed, the result will be a firm casing, which, even in the most restless child, cannot be disarranged. The needle and thread is by far the preferable mode of completing and sustaining the adjustment, as the stitches are not apt to be interfered with by the patient or friends; pins, on the contrary, are often tampered with, particularly if there should be any restraint from the bandage. As the material is quite soft, no binding or excoriations are produced. The bandage supports the entire limb in an easy position, and clasps the arm sufficiently to prevent injurious motion, without being irksome to the patient. It requires no constant renewal, as one single application, if carefully made and properly secured, can be worn until the cure is perfected.

Dr. Chisholm says he has used this simple contrivance for several years with satisfaction.

Art. 99.—*Removal of the entire body of the Scapula.* By Mr. Walter, of Pittsburgh, U.S.

(*British Med. Journal*, March 20, 1858.)

Case.—John Kling, a farmer, residing in Franklin Township, Westmoreland County, Pennsylvania, æt. 44 years, of hepatic constitution, had enjoyed good health until some two and a half years ago, when pains of a rheumatic character were felt about the left shoulder, not, however, so severe as to interfere for a considerable time with his daily duties. About a year ago, a firm tumour became perceptible on the body of the left scapula, with occasional dull and lancinating pains. The tumour steadily and gradually increased, and with its increase the pains became more severe and constant. When he applied for admission into my hospital, it had attained a size as large as the head of a child three years old, was hard, immovable, and firmly attached to the body of the scapula; the skin covering it was slightly red, and traversed by enlarged veins. There were two fistulous openings on its surface; one caused by a seton which had been passed by a medical practitioner some time before; the other the result of an abscess which opened spontaneously. This latter led to a cavity in the diseased structure, exuding a glairy mucous fluid in small quantity. His sleep had become so broken by continual pain, and his appetite so injured, that his strength was much reduced, and his pulse small and rapid.

On a careful examination of the tumour, from its nature and firm attachments, I determined on resection of the scapula, assisted by Drs. Henderson, Lusk, and Gunster, on September 12th, 1854. A long and free incision was made from the acromion process horizontally to the posterior border of the scapula, and another from the centre of the first directly downwards below the margin of the tumour. The flaps of skin thus formed were reflected; the neck of the scapula, being found sound, was freed by touches of the knife; a chain-saw was passed underneath, and the body of the bone severed from its neck; the whole mass and body of the scapula was then detached from the thorax. Profuse bleeding from the subscapular artery occurred, which was arrested by ligature. The wound was lightly filled with lint; the flaps of skin

approximated, and retained by a few stitches, a linseed-meal poultice covering the whole; and the patient was removed to bed.

It is worthy of note, that before commencing the operation, chloroform was administered, but discontinued, from its effects on the pulse and respiration, causing a sudden corpse-like appearance of the patient. All danger was, however, averted by artificial inspiration, with the tongue drawn forward; and the operation began while the patient was yet partially insensible to pain. For several days the injurious effects of the anæsthetic continued, the patient feeling very sick, with frequent vomiting; the circulation very feeble. Recovery, however, gradually took place; the wound suppurated duly and kindly; appetite returned; all functions became healthy.

At the end of four weeks the large wound had entirely closed, in part by first intention; the residue by suppuration. A week later, the patient left the hospital, being able to make considerable use of his arm. A year afterwards, I heard from him, expressing his gratitude and delight at being freed from a painful disease, and able to follow the laborious duties of a farmer. Such was the freedom of motion and restoration of power in the arm, that he deemed it no longer necessary to observe the advice I gave him on leaving (to give it all possible rest, and to attempt no exercise but of a gentle kind).

The extirpated tumour, upon examination, was found to consist of a cartilaginous mass filled with spiculæ of bone, the periosteum of the scapula being absorbed, and its surface corroded, and covered with stalactiform excrescences.

Art. 100.—*Obliteration of the superior Vena Cava.* By Dr. Oulmont.

(*New York Journal of Medicine*, Jan., 1858.)

In a report on the recent advances of the medical sciences in France, by Dr. Brown-Séquard, reference is made to a paper by Dr. Oulmont upon this rare and little-known affection. Dr. Oulmont, it appears, has observed four cases, and found fifteen other cases in various books or journals. He divides these cases into two categories, in one of which the obliteration is due to concretion or internal tumours, while in the other he places the cases of external pressure upon the vein. Of his nineteen cases there are five of coagulation of blood in the vein, three of internal cancer, five of cancerous tumours of the mediastinum or lungs, two of tuberculous ganglions, four of aneurisms of the aorta. Ordinarily the first symptoms are coughing and dyspnœa, sometimes amounting to intense orthopnœa. In some cases there has been blood with the mucus of the expectoration, and even a real hæmoptysis or hæmatemesis, with palpitations of the heart. In other cases, the first symptoms have been cephalalgia, vertigo, and cerebral congestions. In some cases a very predominant symptom of the disease, and a constant one after a time, œdema of the face has been the first observed. It begins either on one or the other side of the face, quickly extending to the whole of it, and to the forehead and pericranium. The neck and the superior limbs become afterward infiltrated, and at last the œdema reaches the chest and the upper part of the abdomen, rarely extending further down, while the inferior limbs are perfectly normal. There is in the face and other infiltrated

parts a bluish colour, giving the appearance of cyanosis. All the superficial veins are more or less enlarged.

After a time cephalalgia and vertigo are almost immediately produced at every movement; sometimes there is a real attack of apoplexy.

Among the other symptoms we will point out,—insomnia, various hæmorrhages (from the nose, the lungs, or the stomach), fits of suffocation, cough, &c. The pulse, strange to say, remains usually quiet, except at the end of the disease, when fever supervenes. Frequently there are palpitations, and sometimes albumen in the urine.

All these symptoms increase gradually, and at last delirium, coma, agitation, fever appear, and are soon followed by death. In some cases death came suddenly and quite unexpectedly. We need scarcely say that, unfortunately, there is nothing to be done in the way of treatment in this disease, except complete rest, the avoidance of emotions and of stimulating food and drinks.

Art. 101.—*Case in which a Foreign Body was removed from beneath the Heart.* By Dr. E. S. Cooper.

(*Pamphlet*, San Francisco, Whitton and Co., 1857.)

The report of this remarkable case is published by the San Francisco County Medical and Chirurgical Association, as an additional paper to its 'Transactions for 1857,' and it is authenticated by the names of several medical men who were witnesses of the operation.

Case.—Mr. B. T. Beal, æt. 25, of Springfield, Tuolumne County, California, with some other young men, in a frolicksome mood, resolved to burst an old gun, and accordingly loaded it with about eighteen inches of powder, to which they connected a slow match and then endeavoured to seek security by flight. Unfortunately a brisk wind blew up the powder with great rapidity, and the gun exploded before they had retreated far. A slug of iron had been driven into the gun as a temporary breech pin, which bursting out in the explosion struck Mr. Beal in the left side below the armpit, fracturing the sixth rib, entering the chest, and lodging, as was afterwards found, beneath the heart upon the vertebral column, just to the right of the descending aorta, where it had evidently remained from the period of the injury, on January 26th, 1857, until it was removed April 9th, seventy-four days after. In a state of extreme prostration he was brought to the city, having had frequent discharges of several ounces of purulent matter at a time from the chest through the original wound. The left lung had lost its function, probably less on account of the violence done the lung at the time than from the subsequent accumulation of pus in the chest, though he had bloody expectoration for a few days. He came to my infirmary in Mission Street, 8th of April, and during the night following had alarming symptoms of suffocation, so much so that I entertained most serious apprehensions that he would not live till morning. So urgent had his symptoms become that after his arrival he was constantly in absolute danger of dying from suffocation, so that no time was to be lost, even for him to obtain rest from the fatigues of his journey.

Operation.—The patient being placed on the right side, an incision through the soft parts three inches long was made: commencing opposite the seventh

true rib, and following the track of the original wound, was carried over the fifth and sixth ribs, which were drawn close to each other by contractions, consequent upon the injury. The sixth true rib was found fractured and slightly carious. A transverse incision three inches long, was now made, beginning at the centre of the first, when the soft parts were reflected, so as to expose the ribs. Torsion was applied to one intercostal and two or three small arteries which bled rather freely. The wound was now fully absterged, after which an effort was made to find the breech-pin by using the probe. This failing, the incisions were lengthened, and the ribs further exposed. A portion of the sixth rib, which was carious, was now removed, and was followed by the discharge of about ten ounces of fluid resembling venous blood, contained in a cyst which was broken by the removal of the portion of the rib. A most extensive but careful examination with the probe was now made, in order to detect, if possible, the foreign body, yet to no purpose; but air having already been admitted into the chest, I unhesitatingly removed portions of the fifth and seventh ribs, together with such an additional piece of the sixth as was necessary to make ample room to afford every facility for the further prosecution of the search. Some very firm adventitious attachments were now broken up with the fingers, which gave exit to an immense amount of purulent matter—two quarts at least—which had been entirely disconnected with the fluid first discharged from the chest. The pleura had several large holes through it, and was thickened to four or six times its natural state in some parts. The pulsations of the heart in the pericardium could be distinctly seen through these holes. Brandy was now administered freely to the patient, who appeared to be rapidly sinking. The left lung was found completely collapsed after the discharge of purulent matter. By giving brandy freely the patient soon began to revive, when the search for the foreign body was resumed. At this time the fingers could be placed upon different portions of the heart and feel its pulsations distinctly, but could obtain no clue to the existence of the foreign body. The patient now appeared almost completely exhausted. Brandy was given freely. Chloroform was not administered at first, owing to the expected collapse of the left lung on the admission of air into the chest; but a considerable reaction taking place, a limited quantity was now used, and the manipulations continued. A sound was introduced, and the thoracic cavity explored for at least three-quarters of an hour before anything like a metallic touch could be recognised, and then it was so indistinct as to leave the matter doubtful.

The space immediately above the diaphragm was considered the point at which the metal was most likely to be found; since the immense amount of suppuration which had taken place, it was thought might have dislodged, and gravitation carried it down to the bottom of the chest. The metal not being found here there was no longer any probable opinion to be formed as to its whereabouts, and to describe the difficulties of the search that followed would be difficult if not impossible. No one can have any just conception of the degree of patience required to do what was done, save the one who did it. This is not spoken boastingly, but it is simply the truth. It is sufficient to say that a general exploration of that side of the chest was made, and then it was taken by sections, occasionally passing through holes in the pleura, which latter appeared to have scarcely no normal relations to the surrounding structures, touching by lines the entire surface of the parts, and at last the sound appeared to encounter something of a metallic nature beneath the heart, but the pulsations of that organ were so strong against the instrument as to render it difficult to settle the matter definitely. At last, however, it became evident

that the location of the iron was found, and I endeavoured to move it out of its position with the point of the sound, in order to get it into a place more eligible for extraction by the forceps. I failed in this, and in manœuvring the instrument finally lost the track by which the sound had first passed back of the heart to the metal; and it was during my efforts to recover this, and which was accomplished with the more difficulty owing to some membranes falling in the way, that I discovered the sound had in the first instance reached the metal by passing between the descending aorta and the apex of the heart. The metal being again found, the sound was steadily and strongly held in contact with it until a pair of long lithotomy forceps was thereby conducted to the spot and the breech-pin seized and extracted, which, however, was the work of several minutes, owing to the great difficulty in grasping it even after the forceps was made to touch it. The forceps, however, being heavier, the motion of the heart was not so embarrassing to its manipulations as it had been to that of the sound; but owing to its size, it could not follow the sound and be expanded sufficiently to seize the metal without lifting the apex of the heart considerably out of its natural position. After the metal was extracted, the patient was turned on the wounded side, and a tent placed in the track of the original sinus, after which the wound was dressed and the sufferer permitted to rest in bed with his body still inclined towards the injured side.

April 10th.—Greatly prostrate; slight pain in the left breast; no motion of that lung; gave morphine.

11th.—Same as yesterday.

12th.—Slight cough; gave enema and light nourishment.

13th.—Evacuations from bowels; slight discharge from the wound, being the first since the operation.

14th.—Improving; considerable appetite.

19th.—Considerable cough.

20th.—Severe cough to-day and pain in the right side, as also in that of the wound, though not so great as in the other.

Skin dry; no expectoration; urine scanty and highly coloured. These symptoms were very alarming, the more so from the fact of their implicating the hitherto sound lung.

The pneumonic symptoms continued without abatement for several days, and finally subsided, but left the patient greatly prostrate. On the 26th, purulent expectoration began and continued to increase for about a week, when nearly a pint was discharged in the space of twenty-four hours, and during this time but little escaped from the wound. After this period, for nearly two weeks, the discharge was greater or less from the wound in proportion to the amount of purulent matter expectorated and *vice versâ*. The matter from both places being of the same quality and occasionally tinged with blood.

At the end of two weeks from the time the communication between the trachea and the original suppurating surface appeared to have been established, the purulent expectoration began gradually to subside, and the patient's condition slowly to improve until the end of seven weeks after the operation, when he left the city. There was no perceptible motion of the left lung at this time. He was considerably fatigued by his journey from the city to the country, and appeared worse for several days in consequence, but eventually began to improve rapidly, and continued to do so until three weeks since, at which time, as is well known, he visited this city, and was so improved as not to be recognised by medical men present at the operation, who had seen him every day for some weeks after.

Aug. 1st.—*Present condition.*—The external wound has entirely cicatrized. No cough nor pain in the left side—good appetite, and all the functions of the system well performed.

The left breast is somewhat sunken, but the upper lobe of that lung has recovered in a great degree its former action.

ART. 102.—*Two cases of intestinal obstruction in which the Colon was opened in the left inguinal region.* By Mr. CURLING, F.R.S., Surgeon to the London Hospital.

(*Lancet*, Jan. 30, 1858.)

Operations for the formation of an artificial anus in cases of insuperable obstruction of the lower bowel from various causes have been performed in so many instances with a satisfactory result, that the operation is now regarded as established, and creditable to surgical art. But it still remains undecided which is the best operation; the *inguinal*, in which the peritoneum is opened and the anus formed in the sigmoid flexure of the colon; or the *lumbar*, in which an anus is established in the loin by an opening made in the descending colon external to the peritoneum. Mr. Cæsar Hawkins, in a valuable communication to the 'Medico-Chirurgical Transactions,' in 1852, gave a table of forty-eight cases of artificial anus, and after a careful comparison of the results of the two operations, came to the conclusion, "that each operator, weighing the advantages and disadvantages of an artificial anus in front of the abdomen, and of one in the lumbar region, is, as yet, fairly justified in selecting whichever situation he thinks best on the left side of the body." The point to be determined is an important one, and the following particulars of two cases in which the author has recently had occasion to perform the lumbar operation are adduced with the view of adding to the recorded facts, and of pointing out difficulties liable to be encountered by the surgeon. In 1852, Mr. Curling opened the colon in the left loin, for the relief of an obstruction from rectal disease. The patient recovered, and returned to his home in Scotland, where after some months he died In this instance, the descending colon was found fully distended and was readily opened. Such was not the case in the following operations.

CASE 1.—Elizabeth P—, a tailoress, æt. 40, was admitted into the London Hospital, Feb. 24th, 1856, on account of obstruction of the bowels of four weeks' duration. She was a married woman, and had borne a large family. She had never suffered from constipation, nor had she observed any diminution in the size of her motions previous to her present illness. In her last confinement, two months ago, she had less hæmorrhage than usual, but both before and since she had been subject to severe leucorrhœal discharges, accompanied with violent pains in the lumbar region. Four weeks since, her bowels were quite regular. On going to the closet on the twenty-eighth day prior to her admission, she found great difficulty in relieving her bowels, and, after considerable straining, passed a small amount of feculent matter of the usual size and consistency. Since that period she had passed nothing but a small quantity of slimy matter. She sought medical advice, and took ape-

rient medicines, but without relief. At this time she had pain in the right iliac region, extending to the umbilicus, and loss of appetite, but no sickness. Enemata were administered, and she afterwards took croton oil. This was followed by increase of pain, and violent vomiting every quarter of an hour. The day prior to her admission she was sick about twelve times; all her symptoms were increasing in severity, and she was unable to bear the weight of the bedclothes on the abdomen. By morphia, sinapisms to the abdomen, ice to suck, small quantities of brandy and soda-water, her symptoms were mitigated, and her stomach was able to bear beef-tea and arrowroot. I first saw her the next day, the 25th. Vomiting had quite ceased; her countenance was anxious and cachectic; pulse 120, and weak; abdomen greatly distended and tympanitic. On examination per anum, I discovered, at the distance of three inches, a close, carcinomatous stricture of the rectum. On passing my finger into the vagina, I found the indurated, scirrhous mass to be considerable. Mr. Luke saw the case with me, and proposed the passage of a large gum-elastic catheter through the stricture, and the injection of warm water, with the view of breaking up the fecal matter. This was done after considerable difficulty, and about a pint of water injected, when a small quantity of feculent matter came away. But as I found that adequate relief could not be obtained in this way without forcible dilatation of the diseased parts, and the passage of a larger tube, I desisted from further attempts, and proposed the operation for artificial anus, which was performed the next day, (the 26th,) chloroform being given. In the left loin, which was distended and prominent, I made a transverse incision, two fingers' breadth above the ileum, its centre being exactly midway between the anterior and posterior superior spinous processes. After the division of the layers of muscle and the fascia transversalis, a quantity of fat was exposed. On separating this, the peritoneum was brought into view. Careful search was made for the colon, and the wound was dilated towards the spine, the sacro-lumbalis being partially divided, but the intestines could not be found. I was obliged, therefore, to open the peritoneum, when a quantity of serum escaped, and a portion of small intestine protruded. Passing my finger into the cavity, I discovered the colon, contracted and compressed against the spine by the distended small intestine. I drew the colon into the wound, and laid it open by a longitudinal incision, about an inch and a half in length. The sides of the gut were then secured to the lips of the wound by sutures. Very little blood was lost in the operation, and only two vessels required ligature. She was carried to bed much exhausted, her pulse being scarcely perceptible, and placed in such a position on her side as made the opening depending. Some hot brandy-and-water and two grains of opium were given immediately. In a few hours a large quantity of fecal matter passed from the anus in the loin, which gave her great relief. The opium was repeated, and under this treatment, with support, she recovered favorably from the operation, and gradually regained strength sufficient to enable her to get up and walk about the ward. The wound healed, and the inconvenient escape of gas and feculent matter was prevented by means of a hollow pad and elastic bandage, constructed by Mr. Bourjeaurd. The opening in the colon evinced no disposition to contract, and the motions escaped easily. She continued, however, to suffer from pains in the sacrum, and, after some weeks, her health evidently appeared to be giving way. At her own wish, she left the hospital on the 9th of April, and returned home, where she lingered until the 20th, when she died, having survived the operation nearly two months. No autopsy was allowed.

Case 2.—Mr. S—, a stout man, a tradesman, æt. 40, of a pale, sallow

complexion, consulted me, at the recommendation of Dr. Munk, in December, 1855, on account of disease of the lower bowel. It appeared that he had been subject for some months to bleeding from the rectum, and to occasional constipation, and that he had latterly lost flesh considerably. Slight bleeding was first noticed upwards of a year before, but it had increased a good deal within the last few months. On examination, I found a carcinomatous stricture an inch and a half from the anus, the coats of the bowel being much thickened and extensively diseased. I painted the diseased surface with a solution of nitrate of silver, and prescribed astringent injections and cod-liver oil, with a nourishing diet. Under this treatment the bleeding ceased, and he improved somewhat in strength. I saw him occasionally during many months, chiefly in consequence of increasing difficulty in relieving the bowels, and of pains referred to the sacrum. The latter were relieved by morphia, and opiate and belladonna plasters to the sacrum. I found that the carcinomatous growths were filling up the rectum and extending downwards, and when I visited him in the beginning of September, 1856, there were growths projecting at the anus. The passage was so contracted that I could not pass the tip of my little finger into it, and no motions passed but in a liquid form, and after laxative medicine, and there was a slimy discharge tinged with blood. His strength, however, had not suffered materially.

Sept. 26th.—I was summoned to visit Mr. S— in consequence of inability to relieve the bowels. There had been no motion for eight days. He had taken castor oil, senna, Epsom salts, and purgative pills, and, though not suffering any particular inconvenience from constipation, he was getting alarmed, and afraid to take food. His abdomen was soft, and not much distended. His tongue was clean, and he had a tolerable appetite. I attempted to pass a small elastic tube, but could not get it further than two inches, and the water injected all returned. During the last twenty-four hours his urine had been tinged pretty deeply with blood, and he had experienced some pain in the penis—symptoms which indicated the extension of the carcinomatous disease to the urinary passages. Finding the development of carcinomatous matter so great, and the obstruction so complete, I felt it my duty to suggest the operation for artificial anus. I fairly represented to my patient that the operation was not free from danger, and that if he recovered from it he could expect only a short prolongation of life, and that not without suffering. The symptoms not being urgent, I did not press for an immediate decision. All aperient medicines were forbidden, and as much food was to be taken as the stomach would bear. On visiting him the following day, I found him anxious, but in no respect worse. He had taken more food and a little wine. There was no tension of the abdomen; but no feculent matter had passed, and his urine was still tinged with blood. He gave his consent to the operation, which I performed the following day (the tenth day of obstruction), assisted by Mr. N. Ward.

28th.—The patient had continued to take food, and was much the same as the day before. When he was placed in a convenient position with a pillow beneath the abdomen, the left loin was not particularly prominent. Chloroform was given, and the incisions were made as in the preceding operation, but of greater size, as the patient was a muscular subject. Having divided the layers of muscle, and the deep fascia, I separated some considerable masses of fat at the bottom of a deep wound, and sought for the posterior part of the colon. This was not found without much search, and the division of the outer edge of the erector spinæ muscle. Having drawn the bowel to the outer wound, I made a free longitudinal opening into it, and secured the edges

to the margin of the wound in the integuments with four sutures. The operation was difficult and tedious, and during the time it occupied the patient was kept under the influence of chloroform. Very little blood was lost; but four vessels required to be tied. An opiate was given shortly after the operation, and in the evening he was calm and free from pain. There had been only two small evacuations from the wound.

29th.—The patient had slept little, and had lost all appetite. No fæces had passed, but there was no tenderness in the abdomen, or in the wound. In the evening he was much troubled with nausea and occasional vomiting.

On the 30th, learning that no fæces escaped, I passed my finger into the ascending colon, which I found loaded with soft feculent matter. He had taken very little nourishment since the operation, and his pulse was weak. The bowels were well relieved next day by a mild aperient draught, but the irritability of the stomach continued to distress him, and he took scarcely any food. Effervescing ammonia draughts, ice to suck, brandy, hydrocyanic acid, chloric ether, counter-irritation over the stomach, all failed in quieting the organ. He gradually grew weaker and more emaciated, and on the 6th of October, the eighth day after the operation, some bleeding took place from the wound. He lost between three or four ounces of blood before assistance could be had, but the hæmorrhage was readily stopped by a little pressure. The bleeding, which occurred with the urine, soon ceased after the operation, but nearly all his water passed by the anus, rendering him constantly wet and uncomfortable. His stomach at length became quieter, but he still took scarcely any nourishment, and no animal food. The evacuations took place readily, and without pain; but the wound made no progress in healing. He got weaker from day to day, and died on the 13th, having survived the operation fifteen days. Permission to make an autopsy was refused.

In both these operations I was disappointed in not finding the colon distended, a condition which greatly assists the surgeon in his endeavours to open the bowel without injury to the peritoneum. In the first case, after a month's obstruction at the rectum, not only was the colon contracted, but it was actually compressed against the spine and put out of the way by the distended small intestines, so that it was really impossible to reach the bowel without opening the peritoneum. No inflammation or unfavorable symptom resulted, which must be attributed in a great measure to the free use of opium, coupled with good nourishment and support. In the second case, the operation was resorted to on the tenth day of obstruction, and the patient had been able to take food so well that a loaded colon might have been fairly looked for. The bowel was not indeed compressed and displaced, as in the first case, but it was not distended sufficiently to facilitate the operation; and the patient being a stout man, I found it no easy task to reach the colon and to open it behind the peritoneum. These difficulties are mentioned, not with the view of disparaging the lumbar operation, but to invite attention to obstacles which may arise in its performance. My own opinion leans favorably to this operation, in preference to the inguinal, in cases of obstruction from disease of the rectum. In a spare subject, with the colon moderately distended, the operation is not very difficult, nor one attended with any great risk to life; and after the wound has healed around the opening of the bowel, some such contrivance as that used in the first case will greatly obviate the inconveniences of the anus in the loin. Even if the peritoneum be wounded, it may be questioned whether, under judicious treatment, the dangers of the operation are much increased thereby. In the second case the operation can scarcely be said to have prolonged life, for without it the patient, by careful management, would probably have lasted as long. The prime object of the opera-

tion was accomplished in enabling him to relieve his bowels freely; and I attribute the unfortunate result chiefly to the unfavorable influence of chloroform in this instance. That chloroform does occasionally give rise to an irritable state of the stomach, of some duration, is well known. Mr. S— inhaled an unusually large quantity of it, and was kept under its influence nearly three quarters of an hour, in consequence of the difficulties of the operation. He was well able to take food previously, but afterwards lost all appetite, and became troubled with nausea and vomiting, which lasted some days, even after the bowels had been well relieved. The inability to take nourishment, especially animal food, was the chief cause of his sinking; for no peritonitis ensued, and the wound assumed no unfavorable condition until his powers became reduced by want of nutrition.

Art. 103.—*On abdominal subcutaneous Emphysema.* By Dr. O'Ferrall.

(*Dublin Hospital Gazette*, March 1, 1854.)

Emphysema has been described with great accuracy by Hunter, Bell, and others; but the emphysema of authors is that produced by escape into the cellular tissue of atmospheric air modified by the products of respiration. As hitherto observed, it is generally confined to the parietes of the chest and the neighbouring regions of the neck, although its extension to other parts of the body is verified by the records of surgery. The emphysema, however, which originates in inflation from the intestinal canal, and most generally occupies the abdominal regions alone, and in this place gives rise to a swelling likely to be confounded with disease of the abdominal cavity, is now, we believe, for the first time described.

"Abdominal subcutaneous emphysema," says Dr. O'Ferrall, in a clinical lecture delivered at St. Vincent's Hospital four years ago, "is rapid in its formation, and distressing in its effects; and the sufferer will be impatient if any hesitation as to its nature be displayed. I trust, therefore, that the short description which I shall now give you may be sufficient to enable you to recognise this remarkable lesion, when presented for your opinion.

"It is, as I have said, rapid in its formation, and the practitioner may receive an early summons to see a tumour as large and as tense as a dropsy; and he may be told that at bedtime, the previous evening, no trace whatever of this condition had been observed. The tumour or swelling may, on inspection, be found to occupy the whole area of the abdominal parietes, as well vertically as in the transverse direction. It may be colourless, or, indeed, even remarkably pale. The skin is smooth, even shining and tense. On manipulation, this tension is found to differ materially from that arising from liquid effusion into the peritoneum, or that of an ovarian or other cyst. The integument is tense, but not resisting. The least and lightest pressure of the finger displaces it, but it instantly returns and leaves no pit or trace behind. There may, over the whole anterior middle portion of the abdomen, be no crepitation to mark its real nature, and, as yet, you may have only a suspicion, arising from the difference between the sensation then conveyed, and that with which experience

had rendered you familiar, in cystic or other liquid accumulations. A light and springy percussion now elicits an unequivocal tympany, but short and faint, and, indeed, unlike any you ever heard before. Still it is tympany, however faintly marked. You now trace the swelling laterally towards either loin, and here a distinct crepitation is detected. It is similar, in all respects, to that which is met with over the neck and chest in cases where, from any cause, an abnormal communication is established between the air-passages and the general areolar tissue. This crepitation may, perhaps, be detected also towards the inguinal regions, but is generally absent in the middle portion of the swelling. In the course of this examination, which is rapidly accomplished, you may now discover some blush in the integument, and further on a redness of greater or less intensity, and generally of a dusky hue. You are now approaching the real seat and source of the disease. The seat of this discoloration is different in different instances; but we shall suppose that, on approaching the sacral or gluteal regions, you find the discoloration most remarkable, and that here the parts beneath the skin have that peculiar feel to which the term 'boggy' has been applied. What history shall you be likely to receive, on inquiry into the case? If the patient has not had competent advice, and has not been made acquainted with the nature of his malady, you will be told that for a long time, perhaps years, there has been constipation, pain in defecation, occasional hæmorrhage, mucous or puriform discharges, and that he has suffered, as he believes, from aggravated piles. You proceed to examine the rectum, and you discover some one of the various forms of organic disease of that part, diminishing and obstructing its calibre, and producing that state, which an imperfect and superficial pathology has often described, under the name of stricture, as the essential disease. The emaciated condition of the patient is in accordance with the result of this investigation, and you have now a solution of the problem. There has been, in fact, perforation of the coats of the bowel. The natural attempt to limit, by what has been called adhesive inflammation, the depôt thus formed, has failed; or some impulse or disturbance has broken through its lining of lymph, and the cellular tissue has become injected with the gaseous contents of the intestine. If the case has been in competent hands, you will be made acquainted with the fact, that disease of the rectum has been recognised, although the present accident may not have been anticipated.

"That which I have now described is one source of *emphysematous* tumour of the abdomen. The case lately in Mary's Ward is still in your recollection, and you will remember the rapidity with which, in that case, the abdominal swelling was produced.

"But suppose the gluteal and sacral regions afford no marks of local disease, you may, perhaps, discover indications of mischief, as the fingers approach either groin, and here, or just below Poupart's ligament, you may encounter, first, the crepitation; next, the 'boggy' feel; and then you may perceive the dusky discoloration before alluded to. The history belonging to such cases as this will differ materially from that which I have related, as connected with the former example. You may be told that an elastic swelling of long standing, and which

occasionally disappeared altogether, has latterly become permanent and firmer in consistence than before. That vomiting, and constipation, and pain, have suddenly appeared, and existed for a few days, and that, with or without medical aid, the bowels have become free, and the vomiting has ceased, while the swelling continued to enlarge and to acquire a red and congested hue. Now, what is this case? It is most probably a knuckle of intestine adherent to the mouth of a hernial sac, and having a perforation or sloughy opening, through which feculent matter has escaped into the sac, and failing to be bounded by plastic inflammation, or from sloughing of the whole sac itself, has been injected with its fetid gases into the cellular tissue. An illustration of this form occurred in Joseph's Ward, about two years ago, and created a considerable degree of interest at the time.

"Having traced the lesion to the neighbourhood of the groin, you are not to conclude hastily that a hernial tumour is its source; and if the *right* inguinal region be the locality, there is more occasion for reserve on this point. The history may suggest another and very different organic change as the source of the emphysema. You may learn that a firm and painful swelling has been felt in the abdomen, at the lower part of its right side, and just inside of the hip-bone. That constipation, or great irregularity of bowels, had been complained of, and had been succeeded by sickness or vomiting, with chills or rigors, and of fever more or less strongly marked. That the integuments about the groin had become red and painful, and that extension of the limb occasioned considerable suffering. You may, in fine, have the history of *phlegmonous tumour in the right iliac fossa, or ileo-cæcal abscess.* On examination, you may detect, in addition to the boggy swelling, a gurgling which is transmitted, by pressure, upwards in the direction of the ascending colon. In this, as in the former cases, the lesion evidently consists in the escape of the gaseous contents of the intestine into the areolar tissue.

"It is surprising how rapidly the cellular web becomes injected by this poisonous element. A few hours may suffice to develop a swelling extending all over the front of the abdomen.

"The crepitation which is so characteristic of emphysema is, as I have said, not always to be detected in the most prominent portions of the swelling. This would appear to arise from the over-distension of the cellular plates, which very soon lose their vitality, and fall into a sloughy state. In one case I had an opportunity of inspecting the parts which had been destroyed by contact with the deleterious agent; and when incisions are made into such parts, the nature of the change is equally apparent.

"The extent to which the abdominal parietes may be occupied by this peculiar swelling will not be the same in all cases, and will depend on its duration. If you are not consulted for twelve or eighteen hours after its commencement, the swelling may then have engaged the entire area of the abdominal surface, and have assumed the smooth, tense, hemispherical prominence alluded to. At an earlier period of its progress it will occupy a less extensive surface, and one half, perhaps, of the abdomen will exhibit this peculiar swollen condition. I have also seen it present a distinct swelling at each side of

the external margins of the recti muscles, the connexion between those two portions being established by a transverse projection across the hypogastric region. In the case where the swelling occupies the whole anterior surface, the appearance of the abdomen might, to a hasty view, suggest the idea of a cavity tense with liquid effusion.

"The practised observer will, however, even here, remark that the umbilicus is depressed and buried in the middle of the swelling, and he will contrast this appearance with that which is displayed in dropsy. In the one case the umbilicus is sunken and concealed; in the other case the umbilicus projects, and may be even distended by the liquid within.

"It is, notwithstanding, by the careful exercise of the finger, that the diagnosis is to be established. It is to the diagnosis alone that I now wish to direct your attention. The treatment, as well as a history of its results, will form the subject of another inquiry.

"Abdominal cutaneous emphysema is, no doubt, a rare accident in those diseases, in the course of which it is liable to occur. Malignant disease of the rectum may pass through all its stages without perforation of the intestine; and when perforation takes place, it is, in the majority of instances, limited by plastic deposit, and thus the fetid abscess is conducted to the surface by routes which vary in different cases. The contents of the sloughing hernia may reach the surface in a similar way, and an artificial anus be the result. The ileo-cæcal abscess may, in like manner, be uncomplicated with this lesion. The resonance and the gurgling which I have, on a former occasion, described as characteristic of some forms of this abscess, are entirely different from the diffused and huge emphysematous swelling to which I now refer.

"But rare as it undoubtedly is, it has been frequently witnessed in this hospital, and you should be prepared to recognise it when suddenly presented to your notice."

Art. 104.—*Ligature of the external iliac for Femoral Aneurism.* By Dr. Wood.

(*New York Journal of Medicine*, May, 1857.)

In this paper Dr. Wood relates a case in which he performed this operation, and he brings together the cases in which the operation had been already performed, with a view of exhibiting the chances of secondary hæmorrhage.

In Dr. Wood's case the pulsation in the posterior tibial artery was absent until the seventh day after the operation.

On the thirteenth, the ligature from the external iliac was removed.

On the eighteenth, secondary hæmorrhage supervened; five days after the ligature came away.

Pressure by the hand was kept up twelve days—from the eighteenth to the thirtieth day—after the operation. The shot, bandage, and compress were then substituted.

On the twenty-eighth day after the operation, and tenth after the hæmorrhage, pulsation of the external iliac artery entirely disap-

peared. On the thirty-eighth, part of the shot were removed; the remainder, with a compress and bandage, applied as before.

On the sixty-fifth day after the operation, and forty-seventh after the hæmorrhage, all the dressings were removed, and the patient discharged cured.

The following collection of cases exhibits the dangers of secondary hæmorrhage, complicating ligature of the external iliac:

Cases of secondary hæmorrhage after ligature of the external iliac:

Operator.	Ligature separated.	Date of Hæmorrhage.	Treatment.	Result.
Abernethy.	...	5th day.	...	Died.
Mouland.	24th day.	...	...	Cured.
Dupuytren.	16th day.	24th day.	Pressure.	Cured.
Todd.	21st day.	24th day.	Lig. reapplied.	Died.
B. Cooper.	...	19th day.	...	Died.
Hewson.	29th day.	6th day.	Pressure.	Cured.
Lallemand.	...	5th day.	...	Died.
Baroni.	19th day.	40th day.	Laid open tumour.	Died.
Power.	...	5th day.	...	Died.
A. Cooper.	...	17th day.	...	Died.
Adams.	28th day.	18th day.	Pressure.	Died.
Smith.	7th day.	...	Pressure.	Died.
Ogden.	...	8th day.	...	Died.
Wood.	13th day.	18th day.	Pressure.	Cured.

Summary.—Number of cases, 14; recovered, 4; died, 10.

ART. 105.—*On the use of tincture of aconite as a preventive of rigor after passing a catheter into the urethra.* By Mr. LONG, Surgeon to the Liverpool Royal Infirmary.

(*Liverpool Med.-Chir. Review*, Jan., 1858.)

"I had recently under my care at the infirmary," says Mr. Long, "at the same time, three cases of irritable and almost impermeable stricture of the urethra; in all of which it was impossible to make any progress by dilatation, in consequence of the severe rigors which ensued after each attempt to pass the catheter. Finding that the ordinary appliances did not prevent the occurrence of the rigors, and that the introduction of the instrument could not be attempted oftener than three or four times in a fortnight, in consequence of the severe local and constitutional irritation which followed its use, I adopted the following plan: I gave two minims of Fleming's tincture of aconite, in an ounce of water, immediately after the introduction of the instrument. The result was as follows: In one case the tincture was given without any omission, after every introduction of the instrument: no rigors occurred, and the treatment progressed without

any interruption to a successful termination. In the second, the same result occurred. On one occasion the tincture was omitted, as an experiment, and a rigor occurred, followed by its usual consequences. The tincture was resumed, and no rigor again occurred, though the instrument was allowed to remain in the stricture for half an hour or longer. This case also did well, but the man left the Infirmary before the dilatation was fully completed.

"In the third case, which was the most severe, no rigor occurred whilst the tincture was given, and the case was progressing favorably. The aconite was, as in the second case, omitted, for the sake of experiment, and two introductions of the instrument were effected without the recurrence of rigor. On the third occasion, however, so severe a rigor, and such untoward local and constitutional symptoms experienced, that up to the present moment no further use of the instrument could be attempted. I conclude that in the above cases, the tincture of aconite, by its direct sedative power, exerted a powerful influence in preventing the occurrence of rigors, and that in similar cases it may become a valuable addition to the means usually employed."

ART. 106.—*On the treatment of excessive involuntary Seminal Emissions.* By Mr. SOLLY, F.R.S., Surgeon to St. Thomas's Hospital.

(*Lancet*, Feb. 6, 1858.)

"It is now," says Mr. Solly, "some years since Lallemand first recommended the use of this caustic to correct the distressing drain on the system which results from these discharges. I am convinced the great value of this plan has not received that attention from the profession which it deserves, while the quacks have availed themselves of it, abused it, and converted, by its indiscriminate and intemperate use, a valuable remedy into a curse.

"Every now and then I see patients from the country who tell me that their medical attendants decline to use it; and I know that some of the heads of the profession are opposed to it. As however, during the last three years, I have found it almost invariably successful, I think it right to make this statement.

"Most of these cases are the consequence of evil habits engendered at school. Much has lately been written, and much is being honestly attempted, in order to abate the frightful evils of prostitution; but bad as are the evils which arise from that source, they are nothing in comparison with those arising from masturbation—a crime which is ignored by the public, the profession, and by too many of the scholastic order. It is a dreadful social evil, and the punishment which follows in its train, unlike the marked and self-evident retribution from illicit intercourse, proceeds so slowly that its victims are bound hand and foot before the medical man is called in to prescribe for its consequences. Epilepsy and insanity are amongst the most prominent of its effects. But I must not now be led away into particulars, though I do conjure the profession not to ignore the existence of disease as the result of masturbation, and thus drive its votaries into the hands

of quacks. They are amenable to treatment, and the surgeon will be rewarded for his trouble.

"As a rule, I first pass a steel sound, and after the urethra becomes less irritable and sensitive, I apply the caustic; in the use of which I make no claim for originality. I employ the caustic-holding catheter of Lallemand, and having passed it over the veru montanum into the bladder, I draw it back again; and on reaching the veru montanum, unsheath the nitrate of silver over the opening of the ejaculatory tubes, quickly sheath it again, and withdraw it from the penis. Its application in this way does not produce much pain, not usually so much as the first introduction of the steel sound; for, in all these cases, the urethra is exquisitely sensitive, and the veru montanum swollen.

"In those cases where the nocturnal emissions simply occur too frequently, and the evil habit which induced them has been abandoned without the occurrence of epilepsy or mental derangement, perseverance in the use of this caustic, applied once or twice a week, according to the irritability of the patient, and continued according to the subsidence of the seminal emissions, from one to two months, with such tonics as the sulphate of iron, quinine, and zinc, will, as far as my own experience goes, effect a cure. This assertion applies even to cases where the testicles have shrunk to little more than the thickness of a penny-piece, and the varicose veins of the cord resemble a bag of worms.

"On a subject like this I must not detail individual cases; but I do assert, most positively, that the above description is no exaggeration of the physical changes which take place in the organs of generation, and that such cases are not incurable."

Art. 107.—*On the causes of death after Lithotomy.* By Mr. Bryant, Assistant-Surgeon to Guy's Hospital.

(*Guy's Hospital Reports*, Third Series, vol. iii, 1857.)

This paper is based upon 176 cases of lithotomy taken from the clinical records of Guy's Hospital, and upon 40 post-mortem examinations, of which 25, or 14·20 per cent., occurred in the 176 cases already mentioned. The conclusions are—

1. That lithotomy is at least twice as fatal during the first five years of life as it is during the second.
2. That during puberty, or between 11 and 20 years of age (the third period), it is more fatal than during any earlier period.
3. That after 20 and up to 40 years of age it is comparatively of small fatality.
4. That 30 per cent. of the fatal cases are during the first 20 years of life.
5. That 10 per cent. are during the second 20 years of life.
6. That 60 per cent. are above 40 years of age.
7. That 14·20 per cent. of the cases operated upon prove fatal.
8. That hæmorrhage is the cause of death in the proportion of 15 per cent.

9. That 12·5 per cent. of the fatal cases died from exhaustion, or simple sinking; and that these are generally above the middle period of life.

10. That pyelitis or inflammation of the kidney is the cause of death in 15 per cent.

11. That pelvic cellulitis is the cause of death in 15 per cent.

12. That this pelvic cellulitis is not generally the result of a too extensive incision through the prostate, but as the result of continuity of a structure which has become inflamed from the necessary injury inflicted upon it by the operation, or by the presence of a calculus.

13. That the combined influence of pyelitis and pelvic cellulitis prove fatal in 15 per cent.

14. That 12·5 per cent. die from pyæmia.

15. That pelvic cellulitis, the result of accidental causes during the operation, may prove fatal in 7·5 per cent.

16. That disease of the kidney is found in at least 30 per cent. of the fatal cases.

17. That pelvic cellulitis is found at least 37 per cent. of the fatal cases, either alone or associated with other disease.

18. That peritonitis, as the result of lithotomy and cause of death, is never found unassociated with other complications, such as pelvic cellulitis or perforation of the bladder.

19. That acute cystitis may alone prove the cause of death.

20. That chloroform, independent of its own special risks, does not seem to have any influence upon the fatality of lithotomy.

Art. 108.—*On lithotritic instruments in cases of Enlarged Prostate.* By Mr. Coulson, Surgeon to St. Mary's Hospital.

(*Lancet*, Jan. 30, 1858.)

In the following remarks Mr. Coulson proposes to explain the necessity which exists for employing a peculiar lithotrite in patients who have stone and enlargement of the prostate. It is now more than three years since this necessity was impressed upon him. He had a case of vesical calculus in a stout man, seventy years of age, whose prostate was enlarged; although the ordinary lithotrite was introduced without difficulty, he found it impossible to seize the stone, in consequence of the lithotrite being too short. The operation was deferred until a new instrument was made. Since the period just mentioned, four similar cases have occurred in his practice. In each case the patient laboured under enlargement of the prostate, and in each he would have been unable to terminate the operation without the use of the instrument which he describes in this paper.

"The changes in the genito-urinary organs produced by enlargement of the prostate, and requiring the use of peculiar lithotritic instruments, may be explained in a few words. Many men who have passed the middle period of life labour under some enlargement of the prostate; and such a condition of the gland seriously interferes with the functions of the bladder; but for my present purpose it will suffice to consider the effects produced on the urethra and floor of the bladder

by any considerable swelling of the prostate. A consideration of these effects will at once show in what manner the modified instruments that I employ in such cases are, of necessity, required. A constant effect of prostatic enlargement is elongation of the urethra. This lengthening of the canal may be connected with several conditions of the enlarged gland; it is, however, mainly confined to the prostatic portion of the urethra, and occurs in one of two ways. As the enlargement pushes up the neck of the bladder under the arch of the pubes, it necessarily draws up and elongates the vesical end of the urethra; or, while the gland is slowly enlarging from before backwards, that portion of the urethra which traverses it must necessarily follow the abnormal development of the prostate, and become elongated. In his recent work on the 'Prostate,' Mr. Thompson observes, 'that in some preparations which he examined, the urethra measured three inches from the orifice of the bladder to the membranous portion, instead of an inch and a half, which is the normal length.' In all cases of this kind, more especially when the middle lobe is chiefly affected, the orifice of the bladder is thrown backwards in proportion to the development of the enlarged lobe; and hence the point of any instrument used is apt to catch against the superior wall of the canal before it enters the bladder. This is an obstacle which the surgeon is very likely to meet with; and I may add, the shorter the instrument he employs, the more likely is the obstacle to occur.

"The effects of the morbid growth on the cavity of the bladder also require some notice. These effects, so far as regards my present subject, will depend on the degree of prostatic enlargement, and on the lobe principally affected. When the enlargement is chiefly confined to the middle lobe of the prostate, which encroaches on the floor of the bladder, the capacity of that viscus at its lower part is proportionably diminished. I have seen a considerable part of the bladder occupied by the enlarged prostate; and, in extreme cases, preparations of which are preserved in our museums, the morbidly developed gland has occupied a great portion of the vesical cavity. In all the cases now alluded to, the effect of this extension of the middle lobe of the prostate backwards is to form a reservoir or sac behind the enlarged gland. The floor of the bladder is here greatly depressed; the urine remains as in a sac; and here a calculus may be lodged, the detection of which is often extremely difficult. I have, at the present time, under treatment, a patient who has a stone concealed behind an enlarged prostate, the existence of which had escaped the notice of those surgeons by whom he had been previously examined.

"The necessity of employing special sounds and catheters in cases of enlarged prostate is well known to all practitioners. The increased length of the urethra, and the encroachment of the enlarged lobe on the floor of the bladder, compel the surgeon to use a much longer catheter than usual. In prostatic enlargement the ordinary catheter will not penetrate into the bladder; and the experienced practitioner at once suspects the existence of the complaint from this circumstance. To enter the cavity of the bladder he takes a catheter from two to four inches longer than the one in ordinary use, and with an instrument of this kind he succeeds, after having passed it about twelve

inches beyond the orifice of the urethra. The same holds good with regard to the sound. Thus the stem of the ordinary sound measures seven inches and a half; the stem of a moderately sized prostatic sound measures nine inches and a half. An ordinary catheter, now before me, measures nine inches and three quarters to the point. A prostatic catheter measures thirteen inches and a half. From fourteen to sixteen inches is the length recommended in standard works.

"In cases of enlarged prostate, then, the surgeon requires a long catheter of peculiar shape to draw off the urine. For the same reason —viz., the increased length of the urethra, and the depression in the floor of the bladder—he will require a long lithotrite of peculiar shape, in order to catch and crush the stone with ease to himself and safety to his patient,

"If the long prostatic catheter be expedient, the long prostatic lithotrite is, *à fortiori*, indispensable. The necessity of employing a longer instrument than usual in such cases will, I imagine, be generally admitted; and if I insist on it here, it is because our standard works do not allude to the point—an omission of which I have been no less guilty than others, and which I would now repair. The ordinary lithotrite of Charrière measures ten inches from the root of the stem to the eye; the chord of the curve, from the eye to the point, is one inch and three eighths. The long lithotrite, manufactured expressly for me by Charrière, measures twelve inches in the stem, and one inch and three eighths in the curve. The stem of Weiss's ordinary lithotrite measures nine inches; the stem of the long instrument which he has made for me measures ten inches and a half; the beak is the same length in both, about an inch and a half.

"I need hardly occupy much space in dwelling on the necessity of the surgeon being provided with a long instrument of this kind, and of the many advantages which he will derive from its use. I can only say that I have had cases which, I feel convinced, I could never have conducted to a successful termination without it. It should be remembered that, with an elongated urethra, the distance between the external and internal orifices of the canal is increased by at least an inch. The enlarged prostate, again, occupies the front part of the floor of the bladder, on which it encroaches another inch or more. The calculus lies concealed in a sort of pouch behind the enlarged lobe, which rises like a barrier before it. Under these circumstances, it is evident that the surgeon will require an instrument longer than that in ordinary use by two or three inches; the common lithotrite will either not pass into the cavity of the bladder, or, if it does, after having been forced up to the handle, the motion of its curved part will still be greatly impeded by the prostate.

"In some of my cases the common instruments were not sufficiently long, and it became necessary to push them up to the shoulder before I could turn the point in the necessary direction. With the long lithotrite, on the other hand, the surgeon gets readily into the bladder; but to overcome the impediments likely to arise from an enlarged middle lobe, a peculiarly formed beak is necessary, and the pelvis must be raised.

"The beak or curved part of the lithotrite must be short, and the

curve sharp. With an instrument of this kind the surgeon will often be able to 'fish up the stone from the depression behind the enlarged prostate,' in the manner described in the last edition of my work on the 'Bladder.' By turning the point down, and elevating the handle of the instrument, the stone will commonly be found in the position already mentioned. When the middle lobe of the prostate is much enlarged, and extends some way into the bladder, the point of the instrument cannot be turned downwards in such a way as to reach the stone. The plan from which I have derived most benefit in such cases is that of raising the pelvis of the patient in such a way that the calculus shall be displaced towards the posterior wall of the bladder. Especial care must be taken that the pelvis itself is raised, and not merely the lower extremities. By adopting this plan, I have, on several occasions, immediately caught the calculi, which lay concealed behind the prostate as long as the patient retained the ordinary position. Every lithotrity couch should be provided with some mechanical contrivance for executing this proceeding quickly. The sufferings occasioned by the attempt to seize a stone behind an enlarged prostate, in the ordinary way, and after strong elevation of the handle, are often of the most distressing kind, and cannot certainly contribute to the well-doing of the patient. On the other hand, the ease with which the reversed beak falls on the stone is remarkable; but the manipulation requires a cautious and practised hand."

Art. 109.—*A new operation for Hydrocele.* By M. Carron du Villards.

(*Mon. des Hôp.*, No. 128, 1857; and *Medico-Chir. Review*, April, 1858.)

M. Carron du Villards, a French practitioner in the Antilles, has devised a modification of Larrey's operation for hydrocele, in consequence of the bad effects which result from injection in that part of the world. The accidents produced by it are tetanus, acute hematocele, suppuration, acute orchitis, easily passing into the condition of induration, gangrene, and, when only weak injections are employed, relapse. The author has himself never met with this consecutive tetanus, but practitioners settled at Cuba have assured him that it is of frequent occurrence there. He has, however, met with a great number of cases of hematocele consequent on injection, either with or without organic transformation of the tunica vaginalis. So frequent are these accidents, that a great number of persons repair to the United States for the purpose of having the injection performed. In such bad repute it is among the Creole population and practitioners, that they content themselves with repeated palliative punctures by means of a lancet, the frequent repetition of which almost always leads to the degeneration of the tissues of the scrotum described by Larrey. The author has very frequently met with this form of elephantiasis of the scrotum in the Antilles, where it is known as the Barbadoes disease.

The operation which he has devised in lieu of injection, has now been performed by himself in 50 cases, producing 48 radical cures,

and only 2 failures; and subsequently to the presentation of the memoir, M. Camilleri and others have operated 187 times, with but 7 relapses. It is attended with no accidents and but little pain, is adapted for all the complications and varieties of hydrocele, is of easy execution, and requires little confinement or after-treatment. The patient is placed on a high bed, with his buttocks well raised by means of a cushion, and the situation of the testis having been recognised, the operator, taking the lower part of the hydrocele in his hand, while an assistant presses it downwards, punctures the most dependent part of the tumour with a strong and narrow lancet, which he passes slowly in. As soon as fluid escapes, he slides a long narrow trocar along the blade of the lancet, keeping the point of the instrument within the canula until the upper boundary of the tumour is reached. Having reached this point, the canula is pressed against the tissues, so as to project them somewhat externally, in order to be certain that neither the cord nor a pulsating vessel can be felt in front of it. A piece of cork is next placed against the projected tissues, and against this the trocar is forcibly driven by the application of the palm of the hand to the handle of the instrument. A counter-opening is thus at once effected, just as the jewellers pierce the ears for ear-rings. The stiletto of the trocar is now withdrawn, and replaced by a grooved silver wire, which traverses the two apertures, and is left *in situ* on the removal of the canula. Spirit lotions are applied around the scrotum, and during twenty-four hours a slight discharge of fluid takes place. After this period inflammation is set up, and the secretion is no more reproduced. The scrotum becomes afterwards red, hard, and painful, as in acute orchitis, but it rarely requires treatment. More frequently it has been found necessary to encourage action by placing stimulant ointments in the groove of the wire. On the twelfth day (the patient being usually able to get up by the third) the wire is removed, the patient wearing a suspensory until the twenty-fifth or thirtieth day, by which time he is usually radically cured.

(c) CONCERNING THE UPPER EXTREMITY.

ART. 110.—*Case of simultaneous dislocation of both Shoulder-joints.* By Dr. W. H. VAN BUREN. Surgeon to the New York Hospital, &c.

(*New York Journal of Medicine*, Nov., 1857.)

CASE.—William Coy, a well-built, middle-aged man, was brought to the New York Hospital on April 21st, 1857. It was learned from his friends that he had fallen headlong down a flight of steps in a house in Pearl Street. He was perfectly insensible, with widely dilated and immoveable pupils; pulse 84, rather full and soft; skin cool; respiration hurried and laboured, and at each expiration bright arterial blood issued from nostrils and mouth, in small quantity; no bleeding from the ears. He sank rapidly, and died five hours after admission.

On examination of the body thirteen hours and a half after death, extrava-

sated blood was found beneath the scalp over the left parietal bone and in the temporal fossa of the same side, and a fissure commencing about the centre of the parietal bone and tending obliquely downward and forward to the base of the skull. On removing the calvarium, a large amount of fluid blood was found between the dura mater and bone, covering the surface corresponding to both hemispheres of the brain. The brain proper was apparently uninjured, but an extensive laceration occupied the substance of the right hemisphere of the cerebellum. After removal of the brain, the fracture was found to extend through the petrous portion of the left temporal, and across the body of the sphenoid bones, splitting off the sella turcica completely.

Both shoulders were observed to present the usual physiognomy of dislocation into the axilla, and distinct crepitus could be felt on both sides when the humeri were rotated. On dissection of the right shoulder, the head of the humerus was found in the subscapular fossa, lying between the surface of the bone and the subscapular muscle, which had been lacerated and torn up from its attachments to make a bed for it. Its exact position was about one inch and a half below, and one inch nearer the median line of the body than the base of the coracoid process. The greater tuberosity of the humerus was broken off, and retained in its normal relation to the glenoid cavity of the scapula by the capsular ligament and the muscles to which it gives attachment. The capsular ligament, extensively lacerated in front and on its inner aspect, presented an elongated shred stretching from the upper margin of the glenoid cavity downward and inward to the dislocated head of the humerus, to which it was still attached. The long tendon of the biceps was found occupying its normal relation to the greater tuberosity, having been dragged out of the bicipital groove, which was empty. The coracoid process of the scapula was fractured through its base, and dragged forward and downward by the action of the coraco-brachialis muscle and the short head of the biceps.

On dissection of the left shoulder, a condition of parts was found similar to that described as existing upon the right side, with the following exceptions: the head of the humerus was displaced more directly downward, resting upon the anterior margin of the lower border of the scapula, just below the glenoid cavity; the capsular ligament was lacerated on its inner aspect, and less extensively; and the coracoid process was uninjured. The greater tuberosity, however, was fractured off almost exactly in the same manner as on the right side, and retained its natural position in relation to the glenoid cavity, and the long tendon of the biceps.

Apart from its rarity as an example of simultaneous luxation of both humeri, the case just related is remarkable from the similarity of the fracture of the greater tuberosity of the humerus on both sides. The detached fragments were circular in outline, little more than an inch in diameter, and each represented the section of a sphere in its shape, comprising, in fact, little more than the outer shell or cortical layer of the humerus, into which the supra-spinatus, infra-spinatus, and terres-minor muscles are inserted; and they were evidently torn off by the sudden and violent action of these muscles.

This complication of dislocation of the shoulder, with tearing off of the greater tuberosity of the humerus, if we are to credit Malgaine, occurs much more frequently than is generally supposed, and its presence explains, according to this surgeon, the sensation of crepitus which Velpeau asserts, is so often felt in cases of luxation when the shoulder is firmly grasped by the left hand, and the dislocated limb rotated forcibly by the right. Malgaigne also asserts that this lesion is accompanied by the appearance of ecchymosis upon the inner side of the arm within a few days after the accident ('Traité

des Fractures et des Luxations,' t. ii, p. 512). In two out of the six dissections, which he had made of cases of what he classifies as intra-coracoid luxations of the shoulder (according to him the most frequent variety), the greater tuberosity of the humerus was found torn off, and occupying the same position and relation to the glenoid cavity as in the case which I have described.

ART. 111.—*A new splint for cases in which the elbow-joint has been excised.* By Mr. HEATH, Demonstrator of Anatomy in the Westminster Hospital.

(*Lancet*, Nov. 28, 1857.)

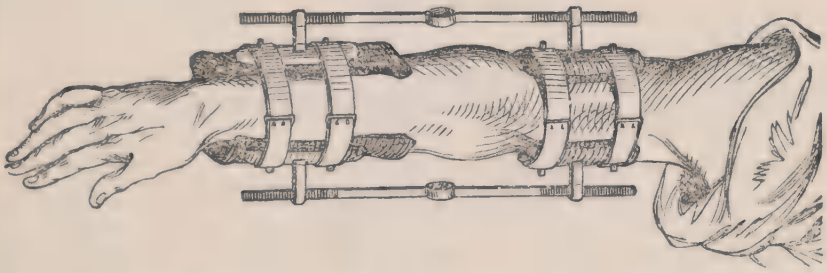
The three following cases, occurring in the practice of Mr. Fergusson, in King's College Hospital, and related by Mr. Swain, house-surgeon to the hospital, show how advantageously Mr. Heath's splint may be used in cases of this kind, in effecting passive motion after the process of healing is nearly completed. The instrument prevents the bones from coming into close contact, and permits of flexion and extension. It is now in general use in King's College Hospital.

CASE 1.—Margaret W—, æt. 21, admitted into No. 3 Ward, May 9th, 1857, with disease of the right elbow-joint. The patient is a native of Maidstone, where she had been in service; has never been very strong; and about twelve months ago had a glandular abscess in the neck, which is still open. About six months ago, without any previous injury, the right elbow began to swell, and became so painful that she was unable to move the joint. Fomentations and liniments were used without any relief. The joint became more tender; and in the month of April, an abscess burst a little below the external condyle of the humerus, where an ulcer still remains. The arm continuing swollen and immoveable, she was advised to come to King's College Hospital. On admission: she is a pale, delicate-looking young woman. On the neck are the scars of some scrofulous ulcers; there is considerable enlargement of the right elbow; the arm is bent at a very oblique angle, and requires to be supported; there is some slight movement in the joint; the ulna can be pushed up against the humerus, and slightly moved from side to side. About two inches below the outer condyle of the humerus is a small ulcer, the size of a fourpenny-piece, which discharges a serous-looking fluid; the skin covering the joint is red and shining. She complains of considerable pain in the joint, aggravated by movement.

May 13th.—Mr. Fergusson detected fluctuation above the inner condyle, and made a puncture which gave exit to an ounce of pus.

16th.—The patient being placed under the influence of chloroform, Mr. Fergusson proceeded to excise the joint. He made a single longitudinal incision at the back of the joint, about four inches in length, and then dissecting back the integuments on either side, he was enabled to remove the olecranon and articular surface of the ulna by means of a saw and cutting forceps. He then proceeded to remove about an inch of the end of the humerus with the saw, steadying the bone by the use of the lion forceps. The end of the radius was then removed, and the wound brought together with four sutures. Little bleeding occurred. In the evening, the elbow being extended, and the forearm placed in a position midway between pronation and supination, a bandage was placed above and below the wound, and a splint,

contrived by Mr. Christopher Heath, the late house-surgeon, was applied, the principle of which is to make extension between the cut surfaces of bone, it being possible at the same time to flex and extend the arm so as to lead to the formation of a moveable joint. The accompanying engraving (from a photograph by Mr. Mason, of King's College Hospital) represents the apparatus as applied to the patient's arm. It consists of four iron plates (well padded) with projecting portions, each of which is perforated by a female screw. Two iron rods, with hinges in their centres, and a male screw at each extremity, work in the projecting eyes, and the screws at the two ends being cut in opposite directions, the hinge necessarily remains central, while the plates may be separated to any extent. The arm having been bandaged above and below the wound, the plates are attached firmly by means of straps and buckles, (additional strips of plaster being used if necessary,) when by turning the iron rods, the extremities of the bones are separated to the required distance, while by means of the hinges in the centres of the rods, motion can be made with the greatest facility.



By means of this splint, the arm was kept in position, and flexed daily. On the 23d the splint was re-adjusted, and the wound reported healthy.

On June 15th the patient is reported as being in much better health. The wound was granulating healthily, and she was beginning to obtain some power of flexion and extension. The splint was now entirely left off.

On August 5th the patient was discharged, with the wound quite healed, and possessing some little power over the limb.

A few days ago the patient presented herself at the hospital. Her general appearance was much improved, and she has now almost perfect power of flexion, extension, and rotation.

Case 2.—Jane P—, æt. 14, a slight girl, with florid complexion, was admitted on the 16th of June, 1857, with disease of the left elbow-joint. When a month old, abscesses formed in the neck and both elbow-joints; that in the right subsided, and perfect motion was obtained after a short period; but the abscess in the left joint led to complete anchylosis. The joint remained in a quiescent state up to five years ago, when an abscess formed in its neighbourhood; this, however, subsided, and she experienced no inconvenience until a month before admission, when another abscess formed on the inner side of the joint, which burst, and has continued to discharge ever since. The forearm is slightly flexed on the humerus; the elbow is perfectly locked, very tender, and slightly enlarged. Just over the internal condyle there is an ulcer about the size of a sixpence, through which a probe can be passed down to the bare bone. On the posterior surface of the joint, and on the outer side of the forearm, there are old cicatrices.

June 27th.—Dr. Snow having administered amylene, Mr. Fergusson proceeded to excise the joint. Having made a vertical incision about six inches long at the back of the joint, he dissected back the integuments on either side, until the joint was fully exposed. During this dissection no ulnar nerve

could be discovered. He then applied the saw to the olecranon at its junction with the shaft of the ulna, and having sawn through the bone in that position, the saw was again applied to the humerus just above the condyles, and the piece of bone intervening between the two cuts removed. At this stage of the proceedings a large quantity of pus spirted out with great force from the neighbourhood of the joint. Some diseased tissues, implicated in the abscess, were then dissected off. No ligatures were required, and the edges of the wound were brought together by two stitches.

30th.—The patient having gone on very well during the intervening days, the arm was placed in Mr. Heath's splint (before described), and flexed once or twice upon the humerus. The bones were kept well apart from one another; but after a time the arm and hand became rather swollen, and

On July 3d the splint was taken off, and the arm placed on a straight splint.

On the 7th, Heath's splint was again applied and the arm now and then flexed, the extension caused by the splint much lessening the pain of that operation. The wound assumed a healthy appearance, and the patient was in a very satisfactory state.

On the 20th, the wound was reported as "looking very healthy," and at each dressing the arm was flexed and extended, not much pain being inflicted.

At the beginning of August the side splints were taken off, and a straight splint in front of the joint was substituted. The wound now scarcely discharged at all. The arm was flexed, extended, and rotated at each dressing. By the middle of the month the patient had regained some power of motion in the fingers and wrist.

On August the 25th the splint was left off, and the arm was supported in a sling.

About the second week in September, when she left the hospital, the wound had almost closed. There was plenty of motion in the joint, and she could raise the hand to the head.

Case 3.—Wm. R—, æt. 26, a florid, robust-looking man, was admitted on August 19th, 1857, with disease of the right elbow-joint. The patient states that up to about six years ago he has always enjoyed good health. About that time he contracted syphilis, for which he was mercurialized. This was followed by an eruption, accompanied by pain in the limbs and joints, more especially the right elbow and knee. Shortly after he found that his right elbow was swollen and painful. This in about three months yielded to treatment, but he was never after able to place the limb in a perfectly straight position, nor could he flex it sufficiently to touch the shoulder without great pain. In May last he had a return of the pain and swelling in the joint. This continued unabated up to about five weeks ago, when an abscess formed in the joint.

On admission, the swelling was considerable about the elbow, and the contour of the joint entirely lost. The forearm was slightly flexed on the upper arm, and on pressing the forearm upwards a peculiarly elastic feeling was given.

Aug. 20th.—An incision was made midway between the condyles of the humerus, and a considerable amount of offensive matter discharged itself. A probe introduced through the wound passes readily into the joint.

30th.—The patient being placed under the influence of chloroform, Mr. Fergusson proceeded to excise the joint. As in the other cases, this was

accomplished by making the vertical incision at the back of the joint. The ulnar nerve being carefully hooked back and secured from injury, the humerus was sawn through just above the condyles, and the olecranon and the head of the radius were also removed. Much bleeding occurred during the operation.

Sept. 1st.—Heath's splint was put on, and sufficient extension made with it to separate the ends of the bones. The wound looks healthy, and the patient suffers little pain.

7th.—The arm was bent for the first time, and caused very little pain.

10th.—The splint was removed to allow the swelling to decrease.

20th.—The splint was left off entirely, as it was thought that the effect it had had in keeping the bones asunder was sufficient to secure perfect motion in the joint. The patient can flex the arm a little himself, and with slight assistance can raise his hand to his mouth. The wound is looking very healthy, having closed up to a great extent in a surprisingly short period of time. The patient's health is much improved, and a most favorable result is expected.

ART. 112.—*Division of the tendon of the triceps in old dislocation of the Elbow.* By Mr. FERGUSSON, Surgeon to King's College Hospital.

(*Lancet*, Feb. 2, 1858.)

The following remarks are from the 'Mirror of the Practice of Medicine and Surgery in London:'

A boy, whose left elbow had been dislocated with both bones backwards, since October last, was brought into the theatre of King's College Hospital on the 16th of January, the arm being in a semi-flexed position. When under the influence of chloroform, Mr. Fergusson applied forcible flexion, so as to break up any adhesions which might be present, and thus allow of a moveable joint. This, however, could not be satisfactorily accomplished until the tendon of the triceps cubiti muscle was divided by subcutaneous incision, where it is inserted into the olecranon process of the ulna. When this was completed, complete flexion was obtained, and the arm was for the present bandaged in that position. After a while motion will be used, and no doubt, a good useful arm will result from this treatment. Mr. Fergusson stated that a short time ago he treated another case in a similar manner. A gentleman returned from abroad with his elbow dislocated, and his arm in a straight position, the accident having ensued eleven months before. As the arm was perfectly useless in that position, he was most anxious to have something done. Mr. Fergusson, therefore, resolved to try forcible flexion, which did not succeed until the point of resistance was overcome, and that was the subcutaneous division of the insertion of the triceps muscle, when, as in the case of the boy, the most perfect flexion was gained. This gentleman made a good recovery, with a useful arm. Had the operator not succeeded in remedying the awkward position of the arm, he was quite prepared to excise the joint, which no doubt would have given an equally useful arm.

(D) CONCERNING THE INFERIOR EXTREMITY.

ART. 113.—*Of pain and weariness in the lower limbs of persons having Flat Feet.* By Mr. PAGET, F.R.S.

(*Medical Times and Gazette*, March 13, 1858.)

"Among the numerous instances of this that I have seen in the out-patients' room, I do not remember one in which the patient was aware of his deformity, or did not give an account of himself that was calculated to mislead. The common story is, that he has heavy aching pains in one or both of his ankles, or in his feet or soles; pains extending up the limbs, with weariness, and inability to go through his day's work. And all these or more he ascribes to cold or to some injury; he has no suspicion of deformity, but his feet are *flat*. The soles are, perhaps, not everted; there may be no true valgus, but the feet look elongated, flat, and low, without insteps; the heels are too little prominent, the plantar arches sunken, the ankles thick, the astragalus, navicular, and inner cuneiform bones are below their right level. The pains complained of are those of the muscles and tendons, which are habitually overworked, in the task of keeping the body erect, when its proper bearings on its supports are disturbed; and the like pains may exist in any case in which the foot is habitually used awkwardly.

"The treatment of such cases with orthopædic apparatus is generally sufficient for the relief of the pain; rarely so for the cure of the deformity. With such apparatus, and often without it, as the patients (who are generally between 15 and 20) grow older, the muscles and other structures become accustomed and more adapted to their undue action, and cease to be painful. Many men above 30 who are flat-footed make no complaint of it. The most flat-footed I have seen could walk thirty miles in the day without considerable fatigue.

"In all these cases the pain is probably due to the impairment of composition, which ensues in the muscles during exercise, becoming, at last, greater than can be repaired in their ordinary repose, or when the general health is enfeebled. Pain of a much severer kind, but probably due to a similar condition of unrepaired change of composition, is sometimes consequent on excessive work continued for a comparatively short time.

"A feeble lad, 17 years old, complained of pain in his right arm, especially in the lower part of the biceps, and in the flexors in the forearm. He held his arm bent at the elbow, and nearly straight at the wrist, and he said he could not move it; but he could do so, though feebly and slowly, as if the muscles, though not cramped, were stiff. All the joints could be moved in their full range, smoothly, and without pain. There was no swelling anywhere, but the biceps and flexor muscles felt unequally firm, and some parts of them felt nearly hard, like muscles with the cramp. There were no signs of

constitutional disorder, and the only cause that could be assigned for his pain and other trouble was that he had been working for five months as a smith, hammering for ten hours a day. Rest alone, I believe, cured him.

"Sometimes a muscle after excessive exercise passes into a state of nearly fixed contraction, and abides long therein. Wry-neck may thus follow a great exertion of the muscles of the neck; and I have seen an elbow-joint stiff and motionless through rigidity of muscles ensuing in or quickly following a great effort. These cases are to be distinguished from those of rheumatism, which, in persons disposed to it, is often localised in a muscle shortly after it has been subjected to a too wide or violent action. And it would be very interesting to study the similarities between the stiffness and loss of power in exhausted muscles and the rigor mortis; they are much greater, I believe, than would be generally suspected."

ART. 114.—*Excessive dilatation of the Blood-vessels of the right inferior extremity.* By Mr. ADAMS, Surgeon to the London Hospital.

(*Lancet*, Jan. 2, 1858.)

This unique case is essentially one of congenital dilatation of the arteries and veins of the right lower limb, accompanied by an aneurism by anastomosis in the interior of the os calcis. Death was brought about by the rupture of the aneurism.

Case.—Mr. L—, æt. 30, was sent to me from Canada, on the 4th of August, 1856, for my opinion on his case, by Dr. Lister. He told me that he was subject to a bleeding ulcer near the outer ankle, and that this was accompanied by an enormous dilatation of the arteries and veins. From his own account, it appeared that the disease was congenital, that it had gradually increased, and that only lately it had attained its extraordinary development. He had been subject for many years to occasional attacks of hæmorrhage, which he could himself readily control by pressure. He was a healthy-looking man, with no evidence of internal disease, except that his heart beat more forcibly than natural; but this might be attributed to excitement.

The following were the appearances of the limb: The thigh exceeded the other in bulk by one third. The vena saphena in the thigh was swollen to the size of a man's forefinger, and was distorted in various directions. At the back part of the thigh, there was a pedunculated tumour connected with the vein (evidently a thrombus), from which the blood could be readily squeezed out. The leg was much attenuated, from diminution in size of its muscles; but the veins were excessively dilated, especially about the calf and ankle. The whole surface of the foot was covered by a mass of plexiform veins. When the muscles of the calf were grasped, the mass gave the idea of a sponge from which fluid was pressed out. The arteries were of extraordinary size, and could be felt pulsating over almost the entire limb. The impulse at the groin, along the whole course of the femoral artery, and in the popliteal space, was enormous. A distinct, oblong, aneurismal dilatation was felt in the popliteal space to the extent of three inches. Below this, the posterior tibial artery could be distinctly traced along the back of

the tibia. On removing the bandage with which the leg was enveloped, there was an ulcer or excavation a little behind and below the outer malleolus. From this source, repeated attacks of arterial hæmorrhage had occurred, which were always arrested by pressure. It was covered with an ointment, and I did not remove the dressing, as the patient was fearful of hæmorrhage. I therefore carefully strapped the foot and ankle, and replaced the bandage.

August 6th.—I was called to him this morning, in consequence of a smart attack of arterial hæmorrhage, which had stopped when I reached his lodgings, but I thought it my duty to examine the source of hæmorrhage. I found an irregular, excavated ulcer, larger than a shilling, and filled with a tough coagulum, from beneath which arterial blood was oozing. I had scarcely touched the coagulum, when an immense jet of arterial blood rushed up with a whizzing sound to the height of a foot. I instantly pushed my thumb into the wound, and found a deep hollow extending into a bone. I immediately pushed a piece of sponge into the opening, and sent for the assistance of Mr. Coulson and Mr. Ward, being determined to amputate the limb below the knee. However, the patient would not listen to the proposal, and was satisfied from his former experience that it could be arrested by pressure as before. We therefore applied firm pressure by strapping and bandaging, and the hæmorrhage stopped, although not immediately. I saw him the same evening, when he said he was comfortable, and merely requested that the bandage might be slightly loosened. He had a dose of laudanum, and this was repeated in the course of the day.

On the next morning I advised his removal to the London Hospital, as his lodgings were exceedingly ill-adapted to any operative procedure which might be deemed advisable. To this he consented.

8th.—I was sent for to him early this morning, and found that hæmorrhage had recurred two hours before my arrival, but that it had been stopped by pressure. However, as the plaster and bandages seemed loosened by the effused blood, I removed them, and found that the skin had sloughed to a great extent, that the tendons were laid bare, and that blood was oozing still from many sources; and he was so exceedingly depressed on my arrival that all operation was now out of the question. I ordered as much brandy as could be got down, but he sank half an hour after my visit. I had previously arrested the bleeding by dry lint and bandage to the wound; and had applied the clamp-tourniquet to the inguinal and an ordinary tourniquet to the popliteal artery.

I examined the limb the same afternoon. The arteries from the external iliac were dilated to at least three times the natural size. In the groin there were two aneurismal dilatations of no great size, and connected with the popliteal artery there was an oblong aneurism three inches and a half in length, and an inch and a half in diameter. The coats of the arteries were for the most part exceedingly thin, but here and there they presented patches of atheromatous deposit, so that their area was very irregular. The veins were enormously enlarged; indeed, the deeper-seated veins accompanying the posterior tibial and fibular arteries were so large as to give the idea of large venous sinuses rather than veins; coagula as large as pullets' eggs could be readily drawn from them, and they were so firmly adherent to their accompanying arteries and the periosteum of the bones that it was impossible to detach them. The outer surface of the os calcis, now deprived of its periosteum, was perforated by numerous large openings, whence the hæmorrhage had occurred; the interior of the bone was filled with coagulum and the *débris* of blood-vessels, and on maceration its cancelli were found remarkably attenuated, and almost wholly gone. The astragalus had begun to ex-

hibit marks of disease, as the periosteum was gone in that space where the interosseous ligament connects it with the os calcis. No other part was examined, as we were restricted in the opportunity of any further examination.

Art. 115.—*The subcutaneous operation on varicose veins.* By Mr. Henry Lee, Surgeon to King's College Hospital.

(*British Med. Journal*, Jan. 9, 1858.)

When blood is effused into the cellular tissue in the living body, it undergoes changes varying in different cases. Sometimes it is simply absorbed, leaving the surrounding parts as they were before; sometimes the fibrine becomes separated from the more fluid parts of the blood, and remains after these are removed. Again, the effused blood may remain contained in a kind of sac, of a dark grumous colour, for weeks or months; or, finally, it may undergo a process analogous to that of suppuration, and be discharged, more or less deprived of its colouring matter, as from an abscess. Blood that remains for any lengthened period stagnant in veins undergoes somewhat similar changes. It may be deprived of its serum, and its more solid parts may remain, obstructing the veins for almost an unlimited period, or it may become dark and grumous, undergoing a kind of slow decomposition; or, again, in the fibrine previously separated from the other constituents of the blood, cell-development may take place, and an abscess will form in the vein.

In the various operations which have from time to time been practised for the obliteration of varicose veins, the effused and stagnant blood has occasionally either undergone a kind of decomposition, or has become involved in an abscess; and when the products of these changes have become mixed with the blood, it is now well known with what fatal certainty their presence is manifested. The occasional, although rare occurrence of the symptoms, now recognised as those of blood-poisoning, after operations on the veins, has led surgeons from time to time to seek for modes of operating which should be free from the dangers previously experienced.

In 1815, Sir Benj. Brodie published a paper in the *Medico-Chirurgical Transactions*, in which he advocated the subcutaneous division of varicose veins. In that paper, the advantages of the subcutaneous mode of operating are clearly pointed out. (A description here followed of Sir B. Brodie's mode of performing the operation.) In this mode of operating, no adequate provision is made against hæmorrhage from the divided vessel on the one hand, nor against the absorption through the open mouth of the vein of the products of the effused or stagnant blood on the other. If a vein be simply divided, no one can tell exactly how much blood will be effused; and, if effused in quantity, the changes above mentioned will occasionally take place. These changes may occur either in the blood outside the vein, or in the stagnant blood still within the vessel, or the action may be communicated from one of these to the other. The product of these changes may be localised by the unassisted powers of nature; the vein may be closed, so that no absorption through its canal can take

place. In like manner, an artery, when divided, may spontaneously cease to bleed; but, nevertheless, surgeons are not fond of trusting to these unassisted powers of nature. In one case, as in the other, that which may take place from natural causes may be with tolerable certainty effected by artificial means. The vein, like the artery, may be safely and efficiently closed. If this be carefully done before an enlarged vein is divided, the effusion of blood is in the first instance prevented, and there is proportionately less risk of any of the morbid changes which have been referred to; and, secondly, even should such changes take place, the products of such changes are prevented from entering the circulation through the wounded vein.

Such were the considerations which induced Mr. Lee in the year 1853 to try a new mode of performing the operation of subcutaneous division of varicose veins. The plan then adopted was to place a needle under the vein both above and below the part to be divided. A ligature was then placed over the needle in each situation, and allowed to remain for a couple of days. At the expiration of this time the blood was usually coagulated in the vein, which would be felt as a round soft cord on either side of and between the needles. The vein was now divided by subcutaneous incision, and two days later the needles were removed. After three or four more days the parts usually had the appearance of having united by the first intention, and the patient was allowed to go about his usual occupation. In his first attempts to perform this operation, he could not say that his success had been quite such as he could have wished, and, indeed, expected. One case in particular had some severe local and constitutional symptoms; and he had reason to believe that an abscess had formed in the vein, where it had been traversed by one of the needles. Reflecting subsequently on the cause of this, he became convinced that the origin of the mischief was, that the needle had pierced the vein instead of being made to pass fairly under it. In subsequent operations this point was attended to, and performed with due precaution, as it has now been by Mr. Erichsen, and various other surgeons, a great number of times, and it has not, so far as Mr. Lee was aware, been attended with danger. During the last twelve months a farther improvement, as he conceived, had been effected in regard to this operation. The vein is divided as soon as the needles have been placed under it. The subcutaneous incision heals in about the same time as in the other operation, and the confinement of two days previous to the section of the vein is avoided. In this operation the blood which the vein contains between the two needles is allowed to flow out of the incision; and thus any tendency that there might be for stagnant or effused blood to decompose is avoided. In performing the operation in the manner now described, the blood contained in the veins between two needles escapes; the sides of the vein necessarily fall together, and are maintained in apposition. The sides of the vein compressed by the needles and ligature suffer no violence or injury. The subcutaneous incision is pretty sure to heal by first intention, and even should it not, the vein being closed above and below, no diseased secretion can find its way along its channel. Various cases were given to illustrate the different modes of producing obliteration of veins by subcutaneous division.

ART. 116.—*Chronic hydrarthrosis of the Knee-joint treated by Iodine injections.* By Dr. McDONNELL, Surgeon to St. Patrick's Hospital, Montreal.

(*Montreal Med. Chronicle*, Nov., 1857.)

This is the seventh case which Dr. McDonnell has treated in this manner with perfect success and without the slightest unpleasant result.

CASE.—J. W—, æt. 13, was sent from a town in Vermont, to consult Dr. Howard, the oculist, for an affection of the eyes; he was admitted into St. Patrick's Hospital, where it was observed that in addition to the disease of the eyes, he also laboured under a chronic hydrarthrosis of the left knee-joint, which had caused lameness, and was attended with much pain at the inner side of the joint and at the insertion of the ligamentum patella; the joint was swollen, and globular in appearance; the increase in size amounted to nearly two inches more than the healthy articulation; the swelling was soft, fluctuated on pressure, and the fluid could be forced from the lower part to above the patella, on the front of the femur; a crepitating sensation was experienced when the joint was minutely examined. There was no heat of the joint nor discoloration. He was placed under a mild mercurial course, combined with blistering, stimulating liniments, rest in the recumbent posture, starch bandages, strapping with the mercurial plaster, and the mercury was followed by a course of hydriodate of potash. After a lapse of nearly two months no improvement was perceptible, and I resolved to puncture the joint and inject with iodine; accordingly, this operation was performed in the manner already described, on the 1st July; no pain followed the operation. About four ounces of fluid was drawn off, it was transparent, of a light straw colour, and coagulated slightly on cooling, the opening was closed with adhesive plaster, a wet roller was carried round the limb from the toes to above the knee-joint, and a padded splint was applied to the back of the leg and thigh. No uneasiness or pain followed the operation, and the joint quickly regained its natural appearance; the pain vanished, and at the end of ten days he was able to walk about; but as a measure of precaution I still kept the joint supported by a starched bandage. This patient was seen by some American surgeons during their visit to the scientific association, held here last August, as well as by some practitioners of this city.

The above makes the seventh case in which I have employed in chronic hydrarthrosis of the knee-joint, injections of iodine, and I have not, in a single instance, witnessed the least unpleasant result follow the practice, and in all, it has been eminently successful. Before concluding, I would direct attention to the following points:

1st. The necessity of a careful diagnosis.—It is in chronic hydrarthrosis alone, that I recommend iodine injections.

2d. Puncture the sac above the level of the patella and on the front of the femur, having first made the tumour tense by a bandage carried round its lower portion.

3d. Inject two drachms of tincture of iodine with two drachms of luke-warm water.

4th. Having injected that amount of the fluid, manipulate the joint, so as to bring all its surface into contact with the fluid, which is then to be allowed to remain.

5th. Close the external wound, and surround the joint with a wet bandage, which should be carried upwards from the ankle to above the knee.

6th. Keep the limb in a straight position on a padded splint.

7th. Do not allow any motion to take place for at least a week after the operation.

8th. When the patient is allowed to leave his bed, take off the wet bandage and surround the joint with a starched bandage.

Art. 117.—*On Excision of the Knee-joint.*

By Mr. Humphrey, Surgeon to Addenbroke Hospital, Cambridge.

(*Proceedings of the Royal Med. and Chir. Society*, March 9, 1858.)

The paper contains an abstract of the thirteen cases operated upon by the author. Of these, one (a little child in whom the operation was performed on account of acute suppuration of the joint) died; in four amputation was required, the patients all recovering; and the remaining eight did well, retaining, or with the prospect of retaining, a useful limb in each case. In none were any severe constitutional symptoms excited by the operation, from which it might be inferred that the operation is not in itself one of much danger. Nevertheless, the processes of reparation are more difficult than after amputation; there is likely to be protracted discharge and recurrence of abscesses, &c., and therefore, when the patient is of strumous temperament, or in a very reduced state, amputation is to be preferred to resection. The results of excision are likely to be favorable in proportion as the disease for which it is performed is slight and not acute. Amongst the most suitable cases are those in which the severe stages of disease have passed by, and left the joint crippled, and the limb, consequently, useless. The cases also in which simple inflammatory disease, commencing in the synovial membrane, involves the cartilage and bones, destroying the former to such an extent as to leave little hope of a useful joint, are well suited to excision. But where the disease remains long confined to the synovial membrane, inducing great thickening and various other changes in it, the prospects of excision are less good, because the subjects of this form of disease are generally of strumous temperament, and some portions of the morbid structure are liable to be left, and so become sources of irritation and suppuration. Nevertheless, the author would not altogether decline to perform the operation in this latter class of cases, inasmuch as the remaining fragments of the diseased membrane may fall into a quiescent state and disappear, and the cases do well, provided the bones become firmly united to one another; and if the health begins to fail, the limb can still be removed. The operation is also well suited to some other cases of rarer occurrence, such as certain cases of chronic rheumatic arthritis, knock-knee in the adult, unreduced dislocation, compound fracture of the patella, &c. In performing the operation, Mr. Humphrey makes a crucial external incision, takes away the patella, and dissects the soft parts away from the bones no more than is absolutely necessary for the removal of their articular ends, is careful to tie the bleeding vessels, and to secure good apposition to

the cut surfaces of the bones and of the skin. The straight position and quiescence of the limb are secured by splints and bandages, which should be changed no oftener than is necessary for cleanliness. The after-treatment was very simple in all the cases related; opiates were very rarely given, and stimulants were generally avoided.

Art. 118.—*Excision of the Os Calcis by a new method.* By Mr. Erichsen, Surgeon to University College Hospital.

(*Lancet*, Jan. 30, 1858.)

Excision of the os calcis is usually practised by making an incision *across* the sole of the foot, from one malleolus to the other, turning back the heel-flap thus formed, making another incision forwards over the calcaneo-cuboid articulation, and then dissecting out the bone. In such an operation as this, the sole is extensively incised, and there is the after-disadvantage of cicatrices being left along the line of most pressure. In order to obviate this, the operation was modified, as described in the following case, drawn up by my dresser, Mr. James. The modification consists in carrying a horse-shoe incision from a little in front of the calcaneo-cuboid articulation round and behind the heel, to a corresponding point on the opposite side of the foot. The semicircular flap thus formed is dissected up by carrying the bistoury close to the os calcis, the under surface of which is exposed. A perpendicular incision is then made, about two inches in length, over the middle of the tendo-Achillis, falling into the horizontal one. The tendon is then detached, and the two lateral flaps dissected up, the knife being kept close to the bone. The blade is then carried over the upper and posterior part of the os calcis, the articulation with the astragalus opened, the ligaments divided, and the bone turned out. The articular surfaces of the astragalus and cuboid should be examined, and, if carious, gouged out. When the flaps are brought together, there is no line of incision in the sole, the horizontal one running round the sides of the foot, and the perpendicular one being above this, and behind the heel. M. Guérin describes an operation similar to this, as having been practised by him on the dead subject, but he states that he has had no experience of it on the living. Judging by the case in which Mr. Erichsen has recently performed it, it is easy of execution, and leaves an excellent result.

Case.—Frederic C—, æt. 45, a man of the ordinary stature, having a rather dusky appearance of the skin. By occupation he is a plumber, which he has always followed. He has always enjoyed good general health. He states that he has never had any colic or wrist-drop; but he has now a blue line along the edges of the gums. When about the age of twenty, he had a severe blow on the inner left ankle, or a little above it; after a time this "gathered," and was opened. About five years ago, he fell and injured his left foot; his comrade pulled it forcibly, with the intention of reducing a supposed luxation, with no good result. About two years ago, an abscess formed at the back part of the heel; the abscess was opened, and the patient states that he was told that a bone was diseased. Last April, having caught

a severe cold, his *right* leg became very painful, red, and swollen. There had been a brownish-red line along the integument over the tibia for two years previously. He was ordered to use hot fomentations and poultices. An abscess was opened over the head of the tibia, about two months afterwards. He was then admitted into one of the London hospitals; some diseased bone was removed (patient states) from the head of the right tibia, also from the right os calcis.

Present state.—The patient is in good health, appetite good, bowels open, &c. He cannot walk, though he can bear on his left foot to a slight extent; the right limb is of more use to him, but even that is not very strong. The integuments over the left ankle and its vicinity are tense and shining, looking somewhat like cicatricial tissue. About six inches above the heel a small aperture is observed, and on introducing a long probe, it is found to communicate with the os calcis by means of a sinus; the bone was found to be bared, the crepitus was easily felt. There was also an open sinus near the anterior part of the astragalus on the outer side of the foot; grating was here felt on introducing a probe. There was a pretty fair amount of movement admitted of in the ankle-joint, hence it was diagnosed to be disease of the os calcis, superiorly and posteriorly, and near its articulation anteriorly with the cuboid, but the astragalus was considered to be sound, since its movement on the bones of the leg was good. The upper part of the right leg has also the appearance of cicatricial tissue on its anterior surface, especially over the head of the tibia, and the red line over the course of the tibia is still present. On introducing a probe, grating is felt. A poultice was applied to the ankle, and the patient was placed on a good diet.

December 11th.—Appetite being rather deficient, he was ordered two grains of quinine three times a day.

15th.—Appetite improved, bowels regular.

16th.—The patient being placed under the influence of chloroform, Mr. Erichsen commenced operating by making a longitudinal incision over the head of the right tibia. The edges of the wound being drawn aside, a good deal of necrosed bone was removed by means of the gouge and Mr. Marshall's osteotrite. The cavity thus formed extended upwards very nearly to the knee-joint. It was plugged with lint. While still under the influence of chloroform, the patient was turned on his left side, or nearly on his face, to facilitate the removal of the os calcis. An incision was made just above the sole of the foot, extending from the cuboid on the outer side to the scaphoid on the inner side of the foot, passing round the point of the heel. The posterior part of the sole was then separated from the os calcis, and reflected forwards, the calcaneo-cuboid articulation being opened. The tendo-Achillis was next divided, and the soft parts dissected up on either side, and in doing this a small abscess seemed to have been opened, for a little pus suddenly gushed out, apparently from the cavity in the os calcis. A longitudinal incision about an inch in length was then made over the tendo-Achillis, so as to allow of the lateral soft parts being reflected upwards whilst the calcaneum was being excised. Some difficulty was met with in removing the os calcis, and it was soon found to be anchylosed to the astragalus; it was then sawn off by means of Butcher's saw along the line of articulation, and some small portions of the bone which were left attached to the astragalus, also necrosed, were removed by means of the gouge and bone-forceps. A good many arteries were tied. The flap (consisting of the sole) was replaced, and retained by the aid of a few sutures and a strip of plaster. A suture was also put into the lips of the longitudinal incision above the tendo-Achillis. Water-dressing was applied.

On examination after its removal, the os calcis was found to be considerably excavated. The cavity, large enough to admit a finger, commenced between the tendo-Achillis and the calcaneo-astragaloid articulation; it extended in an arched direction downwards and forwards, then upwards to the astragalus at its articulation with the os calcis. The shell of bone surrounding it was much condensed in structure. A small piece of necrosed bone was found at the bottom of the cavity.

Since the operation the patient has gone on favorably, no bad symptom of any kind having occurred, and the wound in the foot being in a great measure healed.

Art. 119.—*On the treatment of in-growing Toe-nails.*

By Mr. James Long, Surgeon to the Liverpool Royal Infirmary.

Liverpool Medico-Chirurgical Journal, Jan., 1858.)

Speaking of this plan of treatment, which he has practised for nearly thirty years, Mr. Long says,—"I first wash the toe in tepid water, and make the parts as dry as possible with cotton wool. I then, with the flat end of a very fine probe, insinuate between the nail and the granulations a little cotton wool, which I extend backwards along the groove between the base of the nail and cuticle. I next freely rub *the nail* with nitrate of silver, close to the cotton, not allowing the caustic to touch the granulations; and, lastly, place a thin layer of cotton wool around the toe.

"If examined in two days or so, the state of the parts will be found as follows:—The nail will be perfectly black, and detached from the parts underneath to a greater or less extent; the cotton wool, by its imbibition of the caustic and secretions, will have become converted into a hard bluish substance; the granulations will have receded from the nail, and their extreme sensitiveness will have disappeared. The dead piece of nail can then be easily removed by a fine pair of scissors introduced underneath it, and a little cotton wool, carefully introduced into the gap, will, in a simple case, complete the cure.

"Should the nail be very thick, it will be necessary, after the first application of the caustic, to scrape off the dead and blackened surface, and apply it a second time before the nail becomes so permeated by it as to lose its connexion with the parts beneath. A third application is rarely required. By applying the caustic over the whole nail, and around its base and borders, and pushing the skin back by means of cotton wool introduced between it and the nail, after each application, the whole nail may be removed without pain. The recurrence of the growth may be prevented by scraping the middle of the body of the nail from time to time, so as to keep it thin, introducing at the same time a little cotton wool along its border.

"Dr. Nevins has directed my attention to the following remarks on the above subject in his 'Translation of the Pharmacopœia,' in the article on Nitrate of Silver:—'*Previous to the removal of the nail*, the moistened nail ought to be *freely* rubbed with this caustic, and in two

or three hours a poultice should be applied; this makes the nail soft, and the next day, if the nail be again washed in hot water, it can be dissected with ease from the adjacent tissues, *as far as the caustic has been applied.* By this means the horrible and barbarous operation of tearing out the nail, or a portion of it, by force, may be entirely dispensed with. I can speak of this with confidence, having applied it thus in several instances.' "

PART III.

MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

(A) CONCERNING PREGNANCY AND PARTURITION.

ART. 120.—*On the Membrana Decidua which surrounds the Ovum in cases of Tubal Gestation.* By Dr. ROBERT LEE, F.R.S.

(*Proceedings of the Royal Med. and Chir. Society*, Jan. 26, 1858.)

THE author commences this communication by citing various authorities to prove that the common opinion from the days of William Hunter to the present time was that the decidua, or outer surface of the secundines, belong to the uterus, and not to the ovary, or that part of the conception that is brought down from the ovary; and that in cases of extra-uterine pregnancy, a deciduous membrane was still to be found in the cavity of the uterus.

But a case is recorded in the seventh volume of the 'Medico-Chirurgical Transactions,' in which the uterus is stated to have been "considerably larger than we observe that organ to be in the unimpregnated state, even in women who have borne several children. On laying it open, the uterine vessels were observed to be very large but empty, and there was a great quantity of gelatinous matter in the cavity and neck of the uterus. When this was washed off, the internal surface of the viscus looked very vascular, having been highly injected; but there was not the least appearance of a decidua."

A second case is recorded in the seventeenth volume of the 'Medico-Chirurgical Transactions,' in which the author himself was surprised at finding that "no organized deciduous membrane lined the cavity of the uterus, but the whole of it was coated with a thin layer of albumen." This case occurred in 1829, and the preparation was placed on the table of the Society in 1832; but until 1836, when another example of tubal gestation came under his observation, it does not appear that he made any attempt to determine whether the ovum in the Fallopian tube was surrounded by decidua. The two preparations were then examined together, and a description of the appearances observed was published in the 'Medical Gazette' for

1839-40. These cases, with four others which have subsequently come under his observation, were the subject of the present communication.

In Case 1, on opening the tube, and examining the different parts of the ovum, he found a deciduous membrane everywhere surrounding the chorion, and closely adhering to the inner surface of the tube, as the decidua usually does to the lining membrane of the uterus. With the decidua, the chorion, amnion, and embryo were distinctly seen. The uterus was larger than natural, and there was no appearance of decidua lining its internal membrane.

In Case 2, on carefully examining the ovum contained in the right Fallopian tube, it was evident that a deciduous membrane everywhere surrounded the chorion, and adhered to the inner surface of the tube. The placenta, which was situated at the extremity of the ovum nearest the uterus, was seen covered with the decidua, and coagula of the fibrine of the blood were traced from the interstices of the placenta through the decidua into veins in the thickened muscular coat of the tube. The uterus was considerably enlarged, and its inner surface was coated with a very thick layer of yellowish-white soft substance. There was no trace of any arterial or venous canal in this cavity.

In Case 3, the fœtus had reached the age of six months, and was contained in a cyst which adhered to the omentum and intestines, and to the surface of the uterus, and contained a great quantity of thin, fluid-like pus. The walls of the uterus were healthy, and the cavity empty. There was no decidua or substance of any kind coating its inner surface, but a decidua was attached to the placenta in the usual manner.

In Case 4, the greater part of the ovum had been removed, but still the decidua reflexa could be very distinctly seen covering a considerable portion of the villi of the chorion. In the uterus was found a coating of considerable thickness, and of a yellowish-white colour, in which neither arteries nor veins could be traced.

Case 5 was also one in which only a portion of the decidua was found in the tube.

In Case 6, the substance lining the cavity of the uterus resembled the fibrine of the blood, and was of a red colour at its upper part; where it had been detached from the surface of the uterus, the lining membrane presented a perfectly natural appearance. The embryo was inclosed in the amnion, with the vesicula umbilicalis remarkably large. The cells of the placenta and the villi of the chorion were distended with coagulated blood, and surrounded by deciduous membrane. By a careful dissection subsequently made, the decidua was found to consist of placental decidua, decidua vera and reflexa, with a decidual cavity.

An enumeration of the preparations in St. Bartholomew's and Guy's Hospital Museums was appended, illustrating the pathology of Fallopian tube conception. In the former there are five examples, and of one of these the museum catalogue states that "the outermost membrane inclosing the fœtus has all the character of decidua. Besides this membrane, the amnion and chorion are distinct; the fœtus and umbilical cord are also perfect." In the opinion of the author, there

could be no doubt that a decidua surrounds the ovum; and though none of the other preparations had been dissected with the view of ascertaining the point, yet in all the separation of the ovum from the inner surface of the tube has been carried to an extent sufficient to enable us to demonstrate the fact. There are thirteen preparations in Guy's Hospital Museum. The author was permitted by Dr. Wilks, the conservator of the museum, to make a minute examination of the ovum in one of these, which had escaped entire through a rent in the Fallopian tube. He had the satisfaction not only to discover the vesicula umbilicalis, but to see the chorion completely surrounded by decidua, as in Case 1. There could be no doubt that if the ova in these preparations were submitted to a similar examination, a decidua would be found in all, surrounding the ovum in the Fallopian tube. He did not wish to express an opinion on the nature of the membrane or substance found coating the inner surface of the uterus in the greater number of these preparations, which has been almost universally considered to be decidua since the days of Dr. William Hunter, although no blood-vessels in it have been discovered. His great object was to demonstrate the existence of a decidua around the ovum in cases of tubal gestation.

ART. 121.—*On the excitation of Fœtal Movements by Cold.* By Dr. AVELING, of Sheffield.

(*Dublin Quarterly Journal of Medical Science*, Nov., 1857.)

Dr. Aveling's paper will be found at p. 236 of our last volume, with the name of Dr. Sinclair attached to it. The paper had been *read* by Dr. Sinclair at a meeting of the Dublin Obstetrical Society. We regret this oversight, and beg to apologise to Dr. Aveling for it.

ART. 122.—*On Menstruation during Pregnancy.* By Dr. ELSASSER.

(*Monatsch. für Geburtskunde*, Bd. lxxiii, 1857; and *Med. Times and Gazette*, April 24, 1858.)

This contribution to a disputed topic is founded upon 50 cases, extracted from the journal of the Stuttgart Lying-in Hospital, cases which are said to rest upon the most certain information. The subjects were 15 primiparæ and 36 pluriparæ, who, with the exception of two women (aged 36 and 41), were between 20 and 30 years of age. Of the 51 children born, 34 were boys and 17 girls, 36 being mature and 15 immature. The menstruation during pregnancy occurred in 50 women, in the following manner—once in 8, twice in 10, three times in 12, four in 5, five in 6, eight in 5, and nine in 2. In 13 cases the peculiarities of the rhythm of the discharge were inquired into, and the rhythm was found regular in 4, in 1 it occurred at the 6th week, in 3 there were pauses between the epochs, in 2 the menstruation first appeared after the 2d month, in 2 after the 4th, and in 1 after the 5th month. In one case the menstruation first appeared in the middle of gestation, and henceforth came on every 4 weeks, lasting 3 or 4 days. The child, perceived but feebly at first, was strongly felt during the

last 4 or 5 weeks. Hæmorrhage occurred twice within a week before delivery, but a mature, living infant was born. Indications as to the amount of discharge was furnished in 26 cases, and in 18 of them it was less than in the non-pregnant condition. The weight of the 35 mature infants varied from 5 lbs. to 9 lbs.

Dr. Elsässer observes, that although he is unable to state the proportion of cases in which menstruation occurs during pregnancy, it is by no means so exceptional an occurrence as supposed by some authors. It occurs more frequently in pluriparæ than in primiparæ; and it takes place much more frequently during the first half of pregnancy, and especially in the earlier months of this, than during the latter half. The amount of discharge too is smaller than in normal menstruation. The duration of the pregnancy was normal in more than two thirds of these cases (36), while in nearly one third (14) of the cases it was interrupted, in 4 during its first, and in 10 during its latter half. As regards the development of the child, which by some authors has been supposed to be impeded by the occurrence of menstruation, this was found to be normal, or more than normal in three fourths of the cases.

ART. 123.—*Case of Pregnancy where Menstruation had been absent for some years.* By Dr. O. C. GIBBS.

(*North American Medico-Chirurgical Review*, Sept., 1857.)

CASE.—February 2d, 1857.—I was requested to visit Mrs. A—, who resided some twelve miles off. I complied with the request, and found the patient, who was a stranger to me, able to be about the house most of the time, and perform some light work. She complained of extreme fulness and pressure about the bowels and chest; respiration was short and hurried; slight exertion produced dyspnœa; a full meal increased the sensation of oppression, which was occasionally relieved by vomiting, the latter occurring without nausea. She had frequent desires to urinate, being compelled to rise from six to a dozen times a night for that purpose. The horizontal position was insupportable, and she could sleep only by being bolstered up to nearly a sitting posture. Though pale, she was quite corpulent; yet it was evident her abdomen was greatly distended by some foreign substance.

The history of the case was this: She was thirty-two years of age; had been married ten years; had never borne children; never had an abortion; never had unnatural uterine hæmorrhage. From the commencement of her menstrual period until about three months subsequent to her marriage, she had been quite regular in her catamenia. From this time she became quite irregular, both as to the time and quantity of her menstrual flow, the time varying from six weeks to six months, and the quantity unusually small. For the first seven years succeeding her marriage, the catamenial irregularity was as stated above. During the eighth year she menstruated but once, and during the ninth and tenth not at all. Hence, it will be seen that, in this case, ovarian integrity, which determines menstruation, had been gradually waning for nearly ten years. During the last three years my patient had menstruated but once very scantily, and that once about two years since. The abdomen had been slowly but steadily enlarging for five years, though more rapidly during the last few months. She had been, for the last two years, at different times, under the treatment of different physicians,

without apparent benefit, for the same symptoms, for the relief of which she now consulted me. So much for the history and general symptoms of the case.

In view of the irregularity of the menses and their total suppression for about two years, pregnancy was supposed impossible, and hence, not considered in the further examination of the case. It seemed to me evident that the case was one of ascites, encysted dropsy of the ovaries, or an accumulation of menstrual or other fluid within the uterus, in consequence of impermeability of the cervix uteri. With the patient lying upon the back, percussion over the abdomen yielded a dull sound in front, with resonance near the spine; fluctuation was distinct, and after a careful examination I could detect no solid tumour in the abdominal cavity. Dulness on percussion, elasticity, and fluctuation, characterised the abdominal enlargement. The case was evidently not one of ascites.

A digital examination of the uterus per vaginum, was made, but in consequence of the elevated position of that organ and the corpulent condition of the patient, no positive results were obtained. I could not reach the os uteri, but it was evident that the womb was much distended. This fact alone inclined me to the opinion that I had to deal with a case of impermeability of the cervix uteri, and a consequent retention and accumulation of menstrual or other fluid within the uterine cavity. I was not wholly satisfied with my diagnosis, and acknowledged to the patient my indecision; but being earnestly pressed by the friends for a definite opinion, I stated that there was an unnatural secretion of fluid, a dropsical accumulation, which in my opinion was partly within and partly external to the uterus. As the sequel will show, this statement was true so far as it went, but it was not the whole truth.

My remedial efforts were directed wholly to the mitigation of the more prominent and distressing symptoms, and were not wholly without utility. I saw the patient at intervals of a week or ten days, and at my third visit again made a thorough examination of the case, with the hope of more satisfactory results. In this I was disappointed, and consequently pursued my former plan of treatment, waiting patiently for further developments in the case.

About six weeks after my first visit, I made a third examination per vaginum, and accidentally detected ballottement. This diagnostic symptom was certainly unexpected, but it was distinct and unmistakable. It probably might have been detected at first, but it had not been sought for; but, in view of circumstances previously stated, pregnancy was supposed impossible, and consequently no means were taken to detect it. I again examined the abdomen externally, but no manipulation which I could bring to bear upon the case gave evidence of a solid body within; yet to my great mortification, and the patient's great surprise, I unhesitatingly pronounced her pregnant.

About a month after this, and two and a half from the time I first saw the patient, she was taken in labour and was delivered of a male child, to all appearances fully developed as to time, yet weighing only about three and a half pounds. There was nothing peculiar about the labour except that the liquor amnii was excessive, there being probably from six to eight quarts. There was considerable fluid remaining in the abdomen after labour, giving evidence that the case was complicated with ascites. The woman recovered, with no unpleasant symptoms, the ascites passing away without treatment. The child died at two months old, of capillary bronchitis; and up to the present time the menstrual function has not returned, though the woman seems in perfect health.

This case presents some points of peculiarity, which it seems to me were well calculated to deceive in the outset, in regard to its true nature. The patient was a lady of refinement, and of more than ordinary intelligence, and I think the utmost reliance can be placed upon her statements. I certainly can appreciate no motive which she could have for deception, and her statements were confirmed by her husband, also by her sisters.

ART. 124.—*Hæmorrhage in early Pregnancy practically considered.* By Dr. HENRY BENNET, Physician-Accoucheur to the Royal Free Hospital.

(*Lancet*, Jan. 31, 1858.)

Hæmorrhage during the early stages of pregnancy is generally, if not always, a source of anxiety and doubt, both to the patient and to the medical attendant. Of anxiety, because it is the constant forerunner of abortion; of doubt, because its repeated appearance, simulating irregular menstruation, often throws a doubt on the reality of the pregnancy.

Hæmorrhage occurring under these circumstances is still too exclusively considered by accoucheurs in connexion with diseased conditions of the ovum and of its membranes. The important fact, that it is frequently the result of chronic inflammatory conditions of the body and neck of the uterus and of the cervical canal—a fact to which the author drew attention many years ago—is still generally ignored and overlooked; and yet the additional experience he has since acquired has completely confirmed the truth of the views he then brought forward.

Hæmorrhage may occur during early pregnancy, owing to the partial separation of the ovum from its uterine connexions; owing to the existence of a blighted ovum or mole; or owing to the above-mentioned inflammatory conditions.

When the connexion between the ovum and the uterus is modified, under the influence of the maternal, fœtal, or accidental causes, which are generally recognised as the causes of abortion, hæmorrhage is the usual result. In a case of this kind, if the cervix uteri is brought into view, it is found quite healthy, merely presenting the size and colour that pertain to the stage of pregnancy which the patient has reached. The blood is seen gently oozing from the orifice of the cervical canal. These are the cases in which rest and constitutional treatment alone are required, and often succeed, especially when the hæmorrhage has followed some accidental cause. As long as the fœtus is alive, there is reason to hope that any mischief that may have occurred may be repaired, the hæmorrhage arrested, and the pregnancy saved. Moreover as we cannot tell positively, at first, whether the fœtus has died or not, it is our duty to continue our efforts to preserve it, until the violence of the hæmorrhage has destroyed all hope, or until the abortion has actually taken place.

The hæmorrhage which is occasioned by the conditions that lead to abortion is, generally speaking, either subdued, or it continues, notwithstanding treatment, until the abortion has occurred. It may be

arrested, and then break out again and again, but this is the exception. When uterine hæmorrhage occurs irregularly in the early months of pregnancy, the cervix uteri being free from inflammatory lesions, stopping and returning repeatedly, without uterine contractions, it is generally occasioned by the presence in the uterus of a blighted ovum or mole; and, in some rare instances, by that of hydatids.

The fœtal germ may die soon after conception, and become atrophied, absorbed, or lost, whilst the membranes and placenta may continue to grow, like moss on a wall, deriving nourishment from the inner surface of the uterus, and forming an indistinct fleshy vascular mass. It is to intra-uterine masses of this description, the true origin of which was long unknown, that the term mole has been given. Their presence in the uterus, and progressive development, sometimes for many months, gives rise to many, if not most, of the symptoms of pregnancy, and is attended, all but invariably, with repeated irregular hæmorrhage. Sometimes the hæmorrhage is constant; sometimes it is irregularly periodical, simulating morbid menstruation. When these symptoms are present, the state of the patient is necessarily one of doubt and uncertainty, until the mole is expelled. The morbid product to which the name of hydatids of the uterus has been given, is probably generated under the same circumstances, and its presence is attended with identically the same symptoms—viz., irregular, constantly recurring hæmorrhage, and the more or less perfect reproduction of the ordinary signs of pregnancy.

The above are the generally recognised causes and forms of hæmorrhage during the early stage of pregnancy, and with them we may group chronic inflammation of the body of the uterus. The cause to which the author wishes specially to draw attention—viz., inflammatory lesions of the cervix uteri, although overlooked as yet by most accoucheurs, is most certainly the one which is by far the most frequently met with in practice, and the one also over which we have the greatest therapeutical control.

Inflammation and ulceration of the mucous membrane covering the cervix uteri, and lining the cervical canal, is now generally admitted to be a lesion of frequent occurrence in child-bearing women. Such being the case, and the presence of these morbid conditions, although a cause of sterility in some, not preventing pregnancy in many, the two conditions, pregnancy and inflammatory ulceration, must and do often exist. Whenever their co-existence takes place, occasional hæmorrhage, slight or severe, may be said to generally occur, and the more readily as all ulcerative lesions of the uterine neck assume in pregnancy a very irritable fungoid character. Thus hæmorrhage may occur spontaneously, or it may depend on accidental causes, such as over-exertion, marital intercourse, &c. It may be irregular or it may be periodical, simulating menstruation. In any case, its existence is not so much, in most instances, a danger as a relief to the congested and inflamed uterus. The real danger is the existence of the inflammatory disease of the uterine cervix, which causes the hæmorrhage, and unfits the uterus for the functions which it is performing. The pressing therapeutical indication is to subdue the

uterine disease, to heal the ulcerated surfaces from which the blood so readily oozes, and thus to put an end to the danger which threatens the life of the fœtus.

It will be perceived that valuable rules may be deduced from what precedes, for our guidance in practice. If a healthy pregnant female is suddenly attacked with hæmorrhage in the early stages of her pregnancy, we are warranted in considering the hæmorrhage the forerunner of abortion, and we must treat it accordingly. The patient must be kept in the recumbent position, mineral acids and sedatives should be given internally, and laudanum injected per anum if there are uterine tormina or contractions present. Of course no examination should be made, as it might prove an additional source of irritation. If, however, the treatment resorted to, at first successful, subsequently fails, the hæmorrhage again appearing; or if even on the first attack there are decided antecedents of uterine suffering in the history of the patient, a careful instrumental examination of the uterus and of its cervix should be made as soon as possible. If no inflammatory lesions are discovered, we may prepare for the doubts and uncertainties connected with blighted ova; but if, on the contrary, inflammatory lesions are recognised, they should be at once treated and removed. In the latter case, we may hope that the hæmorrhage merely proceeds from the inflamed or ulcerated mucous surface, and that the integrity of the ovum and of its attachments to the uterus has not suffered. Generally speaking, in such cases, if the hæmorrhage has not been allowed to continue too long, the pregnancy is saved by the cure of the local disease. I may safely say that I have saved very many pregnancies by applying the above rules of practice, and that many children now alive and well owe their lives to the recognition of these important facts.

In some instances, where the cervix is diseased, inflamed, and ulcerated, and the blood is seen, on examination, to ooze from the ulcerative surface, the fœtus is dead, and the ovum partly detached, when the examination is made; or these accidents occur before the practitioner has had time to modify the cervical inflammation. In such cases, the treatment of the latter disease does not, of course, save the pregnancy. As, therefore, we never can be sure that the fœtus is still sound and alive, or will continue so, it is well to inform the patient and her friends, from the first, that all our efforts may be unavailing to save the existing pregnancy. Were this precaution not adopted, they might attribute the abortion to the very means used to prevent it.

It is worthy of remark, that cases of this description, in which chronic inflammatory thickening and hypertrophy of the cervix complicate the abortion, are those in which the hæmorrhage is the most severe, the most continuous, and the most intractable. The reason is very simple. The os uteri, thickened and hardened by disease, cannot open to allow the ovum to pass, so the latter is arrested *in transitu*, and the hæmorrhage continues, mechanically as it were, for days. Dr. Bennett has repeatedly been sent for to cases of this kind, in which the patient, anæmic from loss of blood, was apparently at the last gasp, have found a morbid, rigid os, half open, and have been

able with the speculum forceps to extract an ovum thus retained, thereby at once arresting the hæmorrhage. As pregnancy advances, the cervix, even when thus diseased, generally softens and yields.

ART. 125.—*On intra-uterine Fractures.* By Dr. HERBERT BARKER.

(*British Med. Journal*, Oct. 6, 1857.)

In the case which formed the basis of a paper upon this subject recently read before the South Midland Branch of the British Medical Association, no peculiarity of constitution, hereditary or acquired, could be traced to either parents. The mother had borne three healthy children previously, and has since given birth to a fifth, also healthy. During her pregnancy with the subject of the present case, she had a fall down stairs; but, from reflections on the case, Dr. Barker does not connect this event with the fractures as standing in the relation of cause and effect. The child, when born, lived about ten minutes. On examination, no suture lines could be traced, and no bones could be felt through the scalp. The humerus of both sides, and the radius and ulna of both arms were broken, as were both thigh bones, and both tibiæ and fibulæ. On dissection, all the viscera were found to be in a normal and healthy condition; and the peculiarities of the fœtus were confined to its osseous system. The frontal, both parietal, the squamous portion of the ethmoid, and the expanded portion of the occipital bone, were entirely absent. "The shaft of the left humerus bulged out in the middle into a round ossified protuberance, of the size and appearance of a small bullet; above and below, the shaft was suddenly contracted to the diameter of a crow's quill. There was ossification at these points, but the bone was so fragile that it would not bear the slightest manipulation. Just above the protuberance in this constricted portion, there was a distinct fracture, slightly oblique, but complete. The fractured ends were jagged, and could be refitted into each other." The right humerus was similar in appearance to the left, save being fractured in two places; the radius and ulna were fractured in two places; the ulna of the left side had also been fractured, and again united by cartilage. The left femur had a tuberosity in the middle of the shaft: like the humerus, it was obliquely fractured in two places above the tuberosity, and in one place below it; and when the ends of the bone were fitted together, it had a twisted appearance. The right femur was similarly fractured, but without distortion. The shafts of the tibiæ and fibulæ were fractured in several places. One great fact with regard to the structure of the bones generally, was their extreme fragility, and the well-marked deficiency of inorganic matter. After carefully burning out all the organic matter, Dr. Barker found the relative proportions to be—

Organic matter - - - - -	66·66
Inorganic matter - - - - -	33·34
	100·00

Dr. Barker considers the cause of fractures in this case quite compatible with the unusual amount of organic matter, from the fact that the earthy matter was irregularly deposited.

The doctor then proceeds to consider some analogous cases, as reported by Dr. Moffat, Chaussier, Baudelocque, Arnaud, Carus, Billard, and Dr. Montgomery.

With respect to the cause of these fractures, Dr. Barker thinks, arguing from this case in particular, that the inequality in the deposition of earthy matters, and the disproportion in construction between the organic and the inorganic parts, was the main predisposing cause. In the modulated parts there was an increase of earthy deposit; in the constricted parts the bone was formed, but was too feeble to bear the pressure to which it was subjected.

In the normal state there is more organic and less earthy matter in the fœtal bones: they are, consequently, less liable to fracture than at any subsequent period of life; and especially whilst protected by the mobility of the fœtus in the amniotic liquor. Hence, blows or falls are fortunately comparatively harmless in ordinary circumstances.

Dr. Barker draws two practical deductions from his case. Firstly, with regard to labour; and, secondly, in a medico-legal point of view, cautioning the practitioner never to give evidence with respect to fractures in still or newly-born children, without having examined all the bones of the body with reference to their physical strength; their osseous development; the presence or absence of certain bones; the presence of previous fracture and reunion; the presence of external injury, and the contour of the bones and limbs generally.

A second case is reported by Mr. Davies, of Pershore, in which the thigh had suffered a compound fracture, the bones overlapping nearly an inch. This was the sole fracture in this case; and the child has since grown to be a man, with arrest of development in the limb, it being now only about a foot long.

A third case, in which a syphilitic taint was present in the mother, who miscarried at seven months, is reported by Mr. Murray. The child lived a few days with the left humerus and left femur fractured: the whole of this side of the body was soft, consisting of loose, unhealthy fat; whereas, the opposite side was in a state of rigidity and atrophy. The state and composition of the bones in this case were not observed.

Art. 126.—*Report on Cross-presentations.* By Dr. Spaeth.

(*Wien Wochenschrift*, No. 8, 9, 10, 1857; and *Med. Times and Gazette*, Jan. 9, 1858.)

Among the 12,523 births which came under Professor Spaeth's observation while he held the post of assistant-accoucheur at the General Hospital, Vienna, 93 cross-births occurred. Cross-presentations were also, besides these, very frequently diagnosed in pregnant women with exactitude, which on the commencement of labour were converted spontaneously into presentations of the long axis of the body. In primary cross-presentations, *i. e.*, before the rupture of the membranes, the lateral portion of the child's body usually pre-

sented, although in some instances the back or the abdomen was found turned towards the os uteri. In the latter cases the extremities were generally found presenting, and in one instance, both the lower extremities and one of the upper were felt within the os, while the axis of the child's trunk lay completely parallel to the transverse diameter of the uterus. In secondary cross-presentations, *i. e.*, the waters being discharged, the fœtus, when normally developed, always presented with its shoulder; of 56 exactly indicated cases, in which the lateral part of the body or the shoulder presented, in 39 the back of the child was placed forward (24 times with its pelvic end towards the left side, and 15 times towards the right side), and in 17 it was placed backwards (11 times with its pelvic end to the left, and 6 times to the right side).

The following may be enumerated as causes of cross-presentations: 1. *Twin births.* Among the 157 instances of those that occurred, the second child was found in the cross-position 13 times—therefore 1 in 12. The first child was always found in the long presentation. 2. *Maceration of the child.* Among 176 macerated children, 7, *i. e.*, 1 in 25, presented cross-wise. 3. *Premature birth.* Of 655 children, born between the fifth and ninth month, and not in a macerated condition, 16 presented cross-wise—1 in 40. 4. *Placenta prævia.* In 13 cases of this, cross-presentation occurred 3 times. In these 3 cases the placenta was always so placed as to entirely cover the os uteri, while this was only found to be the case in 1 out of the other 10 cases. 5. *Relaxation of the walls of the uterus.* Scanzoni correctly considers unusual relaxation of the parietes of the uterus as one of the most essential circumstances in the production of cross-positions; and it is on this ground that the more frequent occurrence of the position in women who have borne several children is to be explained. Thus of the 93 cases in question, only 20, or of 52 cases not included in the above categories only 10, were primiparæ. Moreover, in the bulk of the great number of cross-positions ascertained to exist during pregnancy, but which were spontaneously converted at the onset of labour into long presentations, presented this condition of relaxation, the rectification taking place apparently because the contractions of commencing labour obliged the hitherto relaxed organ to assume its natural form, thereby removing one cause of the faulty position. 6. *Abundant liq. amnii.* This was also often observed in pregnant women exhibiting cross-position. With the great mobility of the fœtus which exists in such cases, it is quite a matter of chance whether the fœtus during labour is not found in the cross-position. Among the 93 cases such excess of fluid was observed in 10, and certainly occurred yet oftener, in certain of the cases brought to the hospital only after the membranes were broken. 7. The *cordiform shape of the uterus*, *i. e.*, a slight degree of the *uterus bicornis.* This was observed in one case only, but this was an example of the recurrence of the position in three pregnancies. Braun relates a similar case; and there is hardly any doubt that this deformity of the uterus, which is as perceptible after the birth of the child as before its expulsion, is a cause of *habitual* cross-position. 8. *Eventration of the abdominal viscera* was observed in two cases by

the author, once at the hospital and once in private practice, the child being at about the seventh month in each case.

The course and treatment of the 93 cases were as follows:

A. *Spontaneous turning.*—This occurred in one case, that of a woman, aged 24, pregnant for the second time. At 8 a.m., 11th June, the waters were unexpectedly discharged. The os uteri was found relaxed, and the ribs of the child could be plainly felt through it. On external examination, the back of the child was found to be turned forwards, its pelvic extremity lying nearer to the entrance of the pelvis than its head, which lay towards the right side. The uterus was soft, and slight contractions only occurred at long intervals. The patient was kept lying in bed on her left side, and strong pains only c me on in the afternoon of the 13th. Under their influence, the pelvic end of the fœtus passed spontaneously through the os, the uterus assuming its normal longish-round form. At 5 p.m. the living child was born with ease.

B. *Spontaneous delivery in shoulder presentation.*—This occurred in five instances, and these consisted in a fœtus of five months, one of six, two of seven months, and one at full time. The six months' fœtus and one of those at seven months, were in a macerated condition, and the others died during labour. The fir t of these cases, on account of the smallness of the child, was left to itself, while the others only came under observation after repeated unsuccessful efforts at turning had been made. The mechanism was the same in all these cases. The shoulder, under the influence of strong pains, was gradually pressed deeper into the pelvis, while the head advanced more and more forwards from the side of the mother towards which it was turned, until at last it lay exactly over the symphysis pubis. At the same time the trunk moved towards the sacro-iliac symphysis on its side, and was, through the pressure excited upon the buttocks by the fundus uteri, forced down the sacral hollow behind the head, so that first the presenting shoulder, then the under part of the thorax, the buttocks, and the feet passed out, and then finally the head was expelled. The complete extrusion of the shoulder, while the head remained at the entrance of the pelvis, was, however, only rendered possible by means of excessive extension of the neck. Two of the mothers suffered from slight peritonitis, but all recovered.

C. *Turning.*—This was effected in 85 cases.

a. *Cephalic turning.*—Besides the very numerous cases of oblique cranial position in which the head deviating to one side or the other, was directed by manipulation into the pelvic entry, this procedure was put into force in six instances of cross-presentation, the manipulation being external in 2, and internal in 4 of the cases. In the two former, the membranes were as yet unruptured, the uterine walls were relaxed, and the pains infrequent, while the child was sufciently moveable, without the liq. amnii being in excessive quantity. The woman having been laid on her back, one hand was placed above the child's head and the other beneath its pelvis, and by simultaneous pressure the one was directed towards the aperture of the pelvis and the other towards the fundus uteri. As soon as the head had somewhat approached the aperture, its further progress

was much favoured by laying the woman upon the side corresponding to that towards which it had lain. The children in both these cases were born alive. In the four cases treated by internal manipulation, the membranes were still entire, and the hand corresponding to the side on which the head lay was, during an interval of the pains, passed sufficiently high between the uterine wall and the head to enable it to seize the head and draw it towards the pelvic aperture. This manœuvre was assisted by the other hand, placed externally, either pushing the buttocks up towards the fundus, or aiding in thrusting the head downwards. All the children were born living.

b. *Turning by the buttocks* was executed by external manipulation in one instance, the child being born living.

c. *Turning by one or both feet.*—This was performed 78 times under the following different circumstances:

1. *Prior to the rupture of the membranes* in 39, ten being examples of twin-births. The author places the woman on her back, with the pelvis somewhat raised, and introduces the hand corresponding to the side to which the child's feet are directed, when this can be ascertained, but before the waters are discharged it is indifferent to an experienced practitioner which hand he employs. With the exception of two cases, in which hæmorrhage from placenta prævia occurred, full dilatation of the os uteri was always waited for; and the membranes were preserved entire, when possible, until the hand had reached the spot where the feet were expected to be found. They were then broken, and where rapid delivery was required, as in placenta prævia, both feet were brought down; otherwise only one. In the latter case the labour was then left, for self-completion, unless the state of the pulsation of the funis or other dangerous circumstances called for haste. In all cases, however, the delivery of the head had to be assisted, viz., in 37 by manual interference (a modification of Smellie's method), and in 2 by the forceps. In the 37 cases, there were born 28 living (3 being still-born but soon restored), 4 dead, and 5 macerated children. Of the 4 dead children, in 2 the birth had been preceded and accompanied by severe hæmorrhage, in one there was eventration, and one had to be extracted from want of pains. Of the two children delivered by the forceps one was born alive and the other in a macerated condition. As unfavorable complications, there were two instances of narrow pelvis and three of placenta prævia.

2. *After the discharge of the liquor amnii.*—These cases were also 39 in number. The operation was rendered much easier by choosing the hand which corresponds to the side of the mother to which the feet are directed, and which when the waters are discharged could always be ascertained. In part of the cases it was introduced in the German method, by passing its volar surface over the abdomen of the child to the feet. In others, the French method was adapted, by which the presenting lateral parts are pushed further away, and the hands carried over the buttocks to the feet. From the former none of the ill effects said to result from compression of the funis or abdomen were found to arise. In difficult cases great are the effects of a proper position of the woman and choice of the hand, together with carefulness and steadiness in its introduction. By observation of

these points the experienced accoucheur will often succeed after many failures on the part of others. Still, there are cases in which the observation of every precaution is not followed by success, as when the uterus becomes so closely bound round the child by continuous, tetanic contraction, as to forbid the passage even of a quill between them. There are cases, too, in which vain attempts at turning have so excited the uterus as to have aroused the most vehement pains, which follow one after the other in rapid succession. Who, in attempting, under such circumstances, to turn the fast-locked fœtus, would not have the terror of rupture of the uterus before his eyes? It is in such cases that chloroform, or a mixture of chloroform and ether, is of unqualified utility, rectification often becoming possible during anæsthesia, when decapitation would be otherwise unavoidable.

Among these 39 cases of secondary cross-positions there were 10 cases in which turning took place *immediately* after the rupture of the membranes. Of these, (1) There were 8 *accompanied by unfavorable complications*, viz., 2 with hæmorrhage, one child living, the other dying; 3 with prolapse of the funis, 2 living and 1 dying; 1 with the induction of premature labour at the end of the eighth month, the child dying; 1 with very rigid genitals in a primipara, the child living; and 1 with a large-headed child, which lived. (2) The other 8 cases were *uncomplicated*, and all the children were born living. Altogether in the 16 cases, 10 of the children were born living, 4 came still-born, one of these dying, and 2 were born dead. (b) Cases in which turning was performed *within the first half-hour* after the rupture of the membranes. These were six in number, in one of which only the child died. (c) Cases in which it took place at a *later period*, either because the patient came late under observation, or that the waters were discharged prior to the commencement of labour. Of these 7 cases, turning was executed in 4 in one hour, in 1 two hours, in 1 five hours, and in 1 twelve hours afterwards. Two of the children died. (d) In 7 cases the *membranes were ruptured before the commencement of the pains*. In these cases turning was accomplished after 9, 10, 23, 29, 37, and 64 hours, and in one case the exact time was not known, the child being dead when the patient was admitted. Among all these cases turning was not attended with any difficulty except in the first one. The cases under (c) and (d) sufficiently prove that nature usually leaves space enough after the discharge of the waters to admit of turning with success and without much difficulty, providing always that unsuccessful attempts have not excited the impetuous action of the uterus, which leads either to the death of the fœtus, or renders turning exceedingly difficult or impossible. (e) Cases in which turning was accomplished *after prior unsuccessful efforts*. Of these there were three, and the author relates two others which occurred in his private practice. Chloroform was employed in three of these, and turning would probably have been impossible without its aid. All the children were dead.

Summing up the results of the 85 cross-presentations treated by turning, we find that 66 children were born living (of these 9 were still-born, 8 recovering and 1 dying), 13 dead, and 6 in a macerated state. Separating the macerated children, as already dead before the

commencement of labour, the proportion of dead to the living children was 1 in 5. Of the mothers, 69 were in good health, 6 recovered after short illnesses, 1 was transferred to the hospital on account of metastasis, and 9 died. It is to be remarked, however, that the confinement of some of the fatal cases took place at a time when a bad form of puerperal fever prevailed. Of the entire number of 12,523 confinements which furnished these 85 cases, 546 women died of puerperal disease, and 73 were removed to the hospital on account of metastasis, eclampsia, &c. Hence the proportion of mortality in the whole was at least 1 in 22.

D. *Decapitation.*—This was performed in two instances, which are related, the children being dead and the shoulder being so much forced down, and the child so closely compressed by the uterus as to render attempts at turning dangerous. Braun's modification of Smellie's hook was employed.

Art. 127.—*Case of Turning by external manipulation.* By Dr. Grenzer.

(*Monatschr. für Geburts.*, Sept., 1857.)

The following case is from Professor Grenzer's report of the Dresden Lying-in Hospital:

Case.—A strong, well-built woman, æt. 32, who had borne three children happily, was brought in, in labour, on September the 7th. The abdomen appeared stretched more in the transverse direction. The os uteri was very little opened, and the right elbow of the child presented. Through the thin abdominal and uterine walls the head was distinctly felt in the left iliac fossa, the breech opposite in the right side of the uterus. The woman lying on her back, it was then attempted in the intervals of the pains to push the head downwards and the back upwards, whilst in the acme of the pains the uterus was merely compressed on either side. These manipulations were continued for half an hour, then the patient was made to lie on the left side, and in the place where the head was felt a hard pillow was pressed. On examination the elbow was no longer felt, neither could any other part. In the mean time the os uteri had expanded somewhat. The patient was kept in the same posture, and at six p.m. the head was felt by ballottement in the brim. At noon next day the os had fully opened, the liquor amnii escaped, and in one hour and three quarters a living child, weighing eight pounds, was born in the first cranial position. The mother did well.

Art. 128.—*Case of Cæsarian Section.* By Dr. Greenhalgh.

(*Proceedings of the Royal Med. and Chir. Society*, April 13, 1858.)

Case.—A patient in her thirty-first year, who, during her eighth pregnancy, was attacked with symptoms simulating rheumatism, for which she had been treated. During the sixth month of utero-gestation, when she was first seen by the author, she was greatly emaciated and very decrepid, moving about her room with extreme difficulty, and by the aid of surrounding objects. From being five feet one or two inches in height she was reduced, in the space of a few months, to four feet two inches and three quarters. Her urine was found to be loaded with neutral triple phosphates, which a variety of remedies

failed to arrest. The nature of the case being suspected, a vaginal examination was instituted, which revealed a large amount of pelvic distortion, so great as to render delivery impracticable by any other means than the Cæsarian operation. At the full period of pregnancy, labour spontaneously set in; and notwithstanding every attempt was made to reach the os uteri by three of the eminent accoucheurs who favoured the author with their counsel and assistance, their endeavours proved futile; consequently the operation was performed by the author in the ordinary manner, and a living child extracted. Although the patient was alarmingly reduced in health and strength, and a considerable amount of blood was suddenly lost, owing chiefly to the placenta being situated immediately under the line of incision through the uterus, still she continued to progress more or less satisfactorily for fourteen days, when rupture of the transverse colon took place, attended with alarming prostration, from which, however, she rallied. Through this opening fæces continued to escape into the abdominal cavity up to the time of her death, which occurred nineteen days after the operation. The author then detailed the results of the post-mortem examination, which showed extensive atrophy of the whole osseous system, besides far advanced fatty degeneration of the numerous tissues submitted to microscopic and chemical investigation. Especial attention was directed to the dried pelvis, the dimensions of which were detailed, and which, with the uterus, were placed before the Society.

Art. 129.—*Ill effects of Chalybeate Waters upon lactation.* By Dr. Stanislas Martin.

(*Bull. Gén. de Thér.*, Dec., 1857.)

M. Stanislas Martin observed at Chateauneuf in Auvergne, that gallinaceous and ruminant animals were exceedingly fond of the ferruginous waters, but that these exerted the mischievous effect of drying up the milk of the cows. Wishing to see whether this effect extended to the human subject, he induced a young mother to make use of some of the strongest of these waters several days; and the result was that if she had continued to drink them all her milk would have disappeared. From this fact, among others, he cautions practitioners against prescribing ferruginous substances for nursing women, and when their employment seems clearly indicated.

Art. 130.—*Of the use of Belladonna in arresting the secretion of milk.* By Mr. R. O. Blythman.

These cases furnish additional evidence in favour of the idea that belladonna has a real power of arresting the secretion of milk.

Case 1.—In July, 1857, I was sent for a considerable distance from my own home to a neglected case of milk abscess, of very formidable size. My patient was a healthy young woman; this was her first confinement. A free incision was made from the most dependent part, and a large quantity of pus and milk evacuated. On my second visit, the breast was much improved; the secretion of milk, however, was as active as ever. Extract of belladonna was applied around the nipple night and morning. The secretion of milk stopped at once; and the breast soon healed. The application had no effect on the healthy breast, with which my patient continues to nurse her infant.

Case 2.—In September, 1857, Mrs. S—, the wife of a clergyman, caught cold six weeks after confinement, by remaining a considerable time in a wet grass field. As soon as she returned home, she felt shivery and cold. The left breast became hard, inflamed, and very tender. My advice was not sought until the expiration of ten days. The breast was much enlarged and tender, with a succession of hard tumours, each threatening a separate abscess. No milk could be extracted from the nipple. The belladonna extract was applied as in the former case. Secretion was at once checked, and my patient soon recovered. She still nurses on the right side.

Case 3.—Mrs. O—, a most intelligent patient of mine, lost her infant from convulsions, on November 9th, 1857. A few days before its death, she bruised her left breast, which was overcharged with milk at the time, owing to the inability of the infant to take it. The day after its death, the breast was much swollen. No milk could be extracted by the breast-pump. A tumour could be distinctly felt at the upper part. The extract of belladonna was applied to both breasts. The secretion of milk was immediately stopped. In two days my patient was safe. Her own remark was, that she never felt the draught in either breast after the application of the extract.

Art. 131.—*On animal substitutes for Woman's Milk.* By Dr. Routh.

Asses' milk was usually said to be the best substitute. That this was not the case the latest analysis proved. It contained less casein certainly than cows', but much more sugar than women's, and less butter. Looking to the disadvantages resulting from a diet too exclusively saccharine, in developing scrofula, the great advantage of fatty substances in cell-development, and the large excess of salts, which even made asses' milk aperient to adults, he had no reason to believe in its efficacy. His own experience was opposed to it, and until further experiments proved its efficacy, he was bound to reject it as a substitute of value for long-continued use.

Goats' milk.—The evidence in favour of this milk pointed to it as a better substitute than asses' milk. Some analyses of goats' milk were nearly identical with those of human. Its objection—the smell and taste of hircic acid—could be avoided by cleanliness and choice of species; and although usually richer in casein, sugar, and butter than human milk, as a rule, yet by modifying the character of the goat's food (for instance, large admixture of beetroot), a milk might be produced which would greatly resemble human milk. Goats were also more hardy than cows, and experience in Ireland and elsewhere had shown that children throve well on it; indeed, in Ireland, children often suckled the goats directly tamed for the purpose.

Cows' milk was the variety best known in England. Normally, it was too rich in casein and butter, and too poor in sugar, as compared with human milk. But it was often adulterated—in London and Paris chiefly by water. Dr. Routh dwelt at length on this species of adulteration, quoting from Drs. Hassall, Sanderson, R. D. Thomson, and Hillier, and other authorities, from which it appeared that the quantities of watery adulterations varied from 25 to 50 per cent. It was almost invariably acid in stall-fed cows. He then entered at

length on the shameful practices adopted in feeding and keeping cows, and the results on the cows themselves, and the neighbourhood of their stalls, in bringing about disease. Instances were given from the works of Drs. Normandy, Hassall, and Hillier, on the subject. He entered also at length on the results of feeding cows on different alimentary substances, both upon the cows themselves and the milk supplied; and here, as in the case of goats, he showed that if cows were fed on beetroot in excess, the milk supplied closely resembled human.

The next point of inquiry was, how to correct poor milk for infants. Here he dwelt upon the results obtained by Dr. Merei of Manchester. Such milks required larger dilution, because more indigestible, even than rich milks. But it was best to dilute with a thin decoction of arrowroot, for the mechanical advantages of the solution. At the same time lime-water, to correct acidity, peppermint or dill, with a trace of opium, would allay irritation, and prepare a child for digesting cows' milk. If the milk were good, the excess of casein could be removed by addition of prepared rennet, and milk sugar added to bring up the sugar to the normal quantity, with a little cream. This was Mr. H. Lobb's improvement on Professor Falkland's plan. Where good milk could not be preserved, as at sea or elsewhere, then the use of Moore's or Grimwade's desiccated milk could be tried. Amongst other animal compounds, simple cream-and-water was oftentimes of great service. A raw egg, beat up with water and sweetened with milk sugar, and Liebig's beef tea, were often used with advantage. These substances generally were rich in phosphoric acid and chloride of potassium, two salts which were of immense importance in nutrition: the former as entering into the composition of the sub-phosphate of soda, so essential to the blood, to the brain and bones; the latter, in excess in milk over and above chloride of sodium, was, like fat, essential to cell-development. These facts, Dr. Routh thought, justified him in concluding that feeding by hand, if carefully carried out, would be far from so injurious as believed. The chief points are—

1. The warmth of the surface of the child to be maintained.
2. The food to be taken in the semi-erect position.
3. If milk were given, that the cows or goats should be kept clean, and fed according to rule.
4. If this were too rich, it should be corrected by Mr. Lobb's method, or if too poor, by that of Dr. Merei.
5. That amongst other animal compounds, cream-and-water, egg, or Liebig's beef tea, would often be very useful.

(B) CONCERNING DISEASES OF WOMEN.

ART. 132.—*On so-called Hysterical pain.* By Dr. INMAN.

(*British Med. Journal*, Jan. 9, 1858.)

Dr. Inman has most serious doubts whether the idea of "hysterical pain," as contradistinguished from pains common to all ages and sexes, ought not to be expunged entirely from our medical writings. In his opinion this pain is only the pain of fatigued muscles, and the persons who suffer from it are precisely those whose muscles are weak and readily fatigued.

ART. 133.—*Laudanum dressings in painful affections of the Uterus.* By M. ARAN.

(*Bull. de Thérap.*, t. liii, 1857; and *Medical Times and Gazette*, April 3, 1858.)

M. Aran in this paper describes a means of locally applying laudanum, that he has found useful in several hundred affections of the uterus. The object being to retain this substance in contact with the os uteri and upper part of the vagina, a magma is produced by means of an inert powder. The cervix being exposed by means of the speculum, from thirty to fifty (and sometimes more) drops of laudanum are allowed to flow to the bottom of the instrument. After bringing the fluid in contact with the surface by alternately opening and closing the valves of the speculum, a few drachms of starch are placed at the bottom of the instrument by means of a spoon or spatula, so that the laudanum may become absorbed by this, and, this taking place very speedily, the speculum is then withdrawn. While this is doing the starch is kept in vagina by charpie or cotton, which, indeed, may be left at the entrance of the vulva, if the size of this leads to the fear that the substance will fall out when the patient stands erect. Absorption takes place slowly, one hour, and sometimes three or four hours, being required before the first assuaging effect is perceived. No ill effects, whether from excess of narcosis or disturbance of digestion, have been observed. The application may be repeated every other day, or even every day, the patient in the interval well washing out the previously applied magma.

This dressing is applicable to those affections of the uterus and genital organs, which, after active inflammation is subdued, still manifest a painful hyperæsthesia. But it is especially useful in the hyperæsthesia which sometimes accompanies uterine deviations, or the morbid adhesions contracted by the uterus with the other pelvic organs. In these cases of chronic cellulitis, as also in chronic inflammation of the ovary and the tube, it does good service by allaying morbid sensibility, In such cases a precise indication may be often sought for in vain, nothing indicating inflammation or congestion, or

these having been subdued by local bleeding. A few laudanum dressings quickly bring relief, and that not for some days only but for entire months. "I have found another morbid occurrence remarkably modified by these dressings, viz. a special condition of the entire uterus, frequently met with in women of a certain age, and which perhaps is in some cases connected with the formation of small fibrous tumours. In these patients the finger and the speculum fail to detect any sign of inflammation or congestion; and yet so excessive is the morbid sensibility, that a false step or violent shock excites sensibility on every side. In other words, it is a most complete state of hysteralgia; a few laudanum dressings soon allay this sensibility and pain, the patient exchanging in a few days a state of extreme suffering and uneasiness for one of remarkable comfort." M. Aran has made but little use of this means in ulcerated cancer, fearing hæmorrhage from the employment of the speculum; but in non-ulcerated cancer and epithelioma and in fibrous tumours, this means has afforded more marked relief than any other he has tried. It does not cure these patients, but to afford them relief is to do much.

ART. 134.—*A case of complete inversion of the Uterus, of twelve years' duration, successfully treated.* By Dr. TYLER SMITH, Obstetric Physician to St. Mary's Hospital.

(*Proceedings of the Royal Med. and Chir. Society*, April 24, 1858.)

The author commences this paper by referring to two cases of inversion of the uterus, published in the 'Medico-Chirurgical Transactions," in one of which extirpation was practised with recovery of the patient, while in the other, treated by palliative measures alone, death ensued eighteen months after delivery. He brought forward the present case as illustrating a new principle of treatment. Hitherto the cases in which reinversion has been accomplished have been chiefly limited to cases of recent origin. It has been held that unless the inversion could be reduced soon after the accident, there was little hope of accomplishing it, death generally occurring at periods varying from a few months to five or six years. The operation of extirpating the uterus by ligature is a very serious one. Of thirty-four cases of extirpation, twenty-seven recovered and seven died; in nine of these cases the inverted uterus was mistaken for polypus. The subject of the present case was delivered, at the age of eighteen, of a first child, and inversion occurred at that time, but was not suspected by her attendant. When, at length an examination was made, a tumour was found in the vagina, but the opinion of those who saw the case was divided between polypus and inversion. Flooding continued to a greater or less extent for nearly twelve years, during which time she was never for a single day free from sanguineous discharge. All attempts at replacing the uterus by those who considered it a case of inversion failed. The patient was sent to the author of the paper in September, 1856, by Mr. Griffith, of Port Madoc, North Wales, under whose care she had been for a short time. The symptoms of anæmia existed in the most marked degree.

She was subject to epileptiform convulsions and frequent faintings. The drain of blood seemed to replace the other secretions to a considerable extent. She passed very little urine, and frequently went twenty-four hours without micturition. On examination, the uterus was found to be completely inverted, the neck of the uterus and the os uteri being very small and rigid. The author determined to attempt its reduction by continuous pressure, with the intention of dilating or developing the os and cervix uteri. With this object the right hand was passed into the vagina night and morning, and the uterus squeezed and moulded for about ten minutes at a time. Chloroform, which had been found so useful in cases of inversion of shorter standing, was not used, because of the feeble state of the heart and circulation, and the comparative absence of pain. In the intervals between these manipulations, in which the author was assisted by Dr. Vernon, the vagina was distended, and firm pressure exerted upwards by a large air pessary. These means gradually dilated the os uteri to such an extent as to allow of the partial return of the uterus, and on the eighth day from the commencement, complete reinversion took place. The subsequent recovery of the patient was perfect. She has since menstruated regularly, and is in excellent health. The author combats the prevailing notion as to the immobility and unyielding condition of the os uteri in long standing cases of inversion, alluding to the readiness with which the uterus increases, diminishes, and alters in size, under appropriate stimuli. No amount of force will suddenly reduce a case of chronic inversion, but he believes that by air or fluid pressure, so as to convert the fundus and body of the uterus into a wedge, the os uteri may be slowly enlarged in any case, so as to admit of reinversion. Since the presentation of the paper, the author has been informed that the patient is now in the fifth month of pregnancy. The paper concluded by a reference to other conditions, in which air or fluid pressure had been of service, such as the arrest of flooding in abortion, placenta prævia, the expansion of the pelvis in cases of high deformity from mollities ossium, and the induction of premature labour.

Art. 135.—*Obstinate Menorrhagia arrested by iodine injectives.* By Dr. Savage.

(*Lancet*, Dec. 5, 1857.)

Dr. Savage relates two cases of obstinate menorrhagia, in which tincture of iodine was injected into the uterine cavity with the most successful results. In one of these a strong solution of tannin and alum had been injected before having recourse to the iodine, and the bleeding had been arrested for a time. Three days before injecting the iodine, the interior of the uterus was scraped out by Récamier's curette (an operation which gave rise to no pain), and the injection was twice repeated, at intervals of three days, when the hæmorrhage had ceased entirely. Each time three drachms of the officinal tincture of iodine were used. In the other case the injection consisted of two ounces of the same tincture and an equal quantity of water, and the

recovery was equally rapid and perfect. Before resorting to the injection, Dr. Savage dilated the cervix uteri freely, and this he considers to be an important part of the treatment.

ART. 136.—*Obstinate Menorrhagia cured by injection of tincture of steel.* By Dr. BRESLAU, of Munich.

(*Monatsch. für Geburtskunde*, Oct., 1857; and *Med.-Chir. Review*, Jan., 1858.)

"Dr. Breslau's case of injection of liquor ferri sesquichlorati shows the efficacy of this treatment in certain cases of excessive uterine hæmorrhage. A woman, forty-five years old, had worn a pessary for a long time, which she had given up on account of pain and hæmorrhages. Examined, there were found five grape-shaped polypi around the os uteri, with ulceration. These were removed by Siebold's scissors, and potassa fusa applied to the ulcerations. The hæmorrhages remitted somewhat. The uterus was, however, entirely bent upon itself, and the menses returned in great excess. The cavity of the uterus was somewhat enlarged. The return of the menorrhagia reduced the patient to an extreme degree of anæmia. Ergot of rye failed to effect any contraction of uterus or arrest of flooding. Two possible conditions presented themselves to Dr. Breslau. 1st. The five polypi attached to the cervix favoured the presumption that there existed a similar warty hypertrophy of the lining membrane of the uterus. 2d. There might be a destructive ulcerative process of a malignant character going on in the same structure. In the first case, the curette of Récamier seemed indicated, in order to scrape the uterine membrane clean from the presumed excrescences. In the second case, it seemed necessary to bring a caustic and styptic agent in direct contact with the diseased membrane. To answer this latter indication, he selected the liquor ferri sesquichlorati of the Bavarian Pharmacopœia. Having first straightened the retroflected uterus by the sound, and inserted an elastic catheter as far as the fundus, he injected one ounce and a half of the liquor ferri, diluted with an equal quantity of water. The injected fluid was retained in the uterine cavity for a minute and a half by the pressure of the fingers at the os around the catheter. During the operation, the patient felt a dull labour-like pain, which lasted for two hours. The hæmorrhage, which had hitherto been unintermitting, now suddenly stopped, and was not renewed. After some days, brown, crumbling clots were discharged, but no fluid blood. Seven months afterwards there had been no return of menorrhagia. The patient menstruated regularly every twenty-one to twenty-four days; and through internal administration of steel and quinine, recovered robust health."

Art. 137.—*Cupping the interior of the Uterus.* By Dr. Horatio R. Storer.

(*American Journal of Medical Science*, Jan., 1858.)

This operation was conceived and first practised by Dr. Simpson, of Edinburgh, but as yet it does not appear to have been made public in any manner.

"The instrument used," says Dr. Storer, "identical save in coupling, with one made for me at Edinburgh, in 1854, and now also exhibited, is from the hands of Messrs. Codman and Co., of Tremont Street.

"Its construction is sufficiently simple. An air-pump, small but powerful, and a perforated tube, itself of sufficient calibre to contain several drachms of blood, yet not too large to enter the os and cervix uteri; its orifices of a size to escape easy clogging with mucus or clots of blood, and yet too small for extensive laceration or hernia of the mucous coat, and its axis curved to correspond with those of the uterus and vagina. Its passing to a sufficient depth within the uterine cavity is ensured, its entering too far is prevented, by a ring of gutta percha, bevelled above for more perfect closure of the os, and adaptable to any case by remoulding. The exact position of this ring is to be determined by previous careful use of the uterine sound. Like that of the intra-uterine pessary, the point of the stem should almost, but not quite, reach the fundus uteri. By this precaution danger is avoided, and a much more thorough effect rendered probable.

"To the manner of coupling I am inclined to attach some importance. In the Edinburgh instrument, the pump is screwed to the upper portion of the lower tube, while in the other I have joined them by caoutchouc pipe. The liability of a screw-thread to become worn, and the less chance of violence in case the piston should play stiffly, if the coupling, while perfectly tight and fitting, were yet elastic and flexible, occasioned this modification.

"I have used the cup in other cases than those reported, in every instance with the effect of inducing the sanguineous discharge, and I have never seen from it any permanently disagreeable result. Its power upon the nervous system is, however, at times so decided, that its use should be with care. In one case, where the introduction of the instrument had been painless, the first play of the piston occasioned instant and alarmingly profound syncope.

"To the microscopist, this instrument might frequently prove of use, by affording an easy means of procuring healthy or diseased secretions directly from the cavity of the uterus.

"Whether in practice the cup will be found to answer any other indication than that for amenorrhœa already instanced, as for relieving ordinary congestive and inflammatory attacks, either of the uterus itself, Fallopian tubes, or ovaries, remains yet to be seen."

Case 1.—Catharine —, of Roxbury, æt. 30, and unmarried, applied for treatment at the Eustis Street Dispensary, February 2d, 1857.

Catamenia reported as entirely absent for seventeen years; having com-

menced at 12, continued regular for one year, and then on her taking cold, permanently ceased. A general leprous eruption, which immediately followed this suppression, has been constantly present since, disfiguring the patient and otherwise causing her much discomfort.

Somewhat dyspeptic and anæmic; costiveness; addicted to headache, flatulence, nausea. Old ulceration of tonsils. Vaginal leucorrhœa.

She was at first mainly treated for the disease of the skin. The diet was carefully regulated and the bowels kept moderately open. Iodide of sulphur was used locally, Fowler's solution by mouth till specific effect; in vain.

The protoiodide of mercury was then given, though all syphilitic taint had been denied. It was pushed till great irritability of the bowels was produced, though it had been combined with an opiate; patient not improved. The mercurial was subsequently resumed and continued till April 1st, when the gums were sore. It was then stopped, and the arsenic again commenced.

In the mean time, the catamenial disturbance had not been lost sight of. There was never present any decided menstrual molimen; it was therefore impossible, save empirically, to time the attempts at assisting nature. There was, it is true, pain in the head and back, but irregular and uncertain, while the leucorrhœa presented no monthly or periodic increase.

On March 14th, alteratives and tonics having been given for six weeks, with aloetic purgatives, hot hip-baths, &c., &c., from time to time, without benefit either to skin or uterine system, a vaginal examination was made. The abdomen had been previously ascertained to be free from enlargement or tenderness. The uterus was found depressed and slightly retroverted; its cervix elongated, but of small diameter; os almost impervious. The sound entered with difficulty about two inches.

Sinapisms to the breasts were now ordered, in addition to and with the emmenagogues already employed.

March 19th.—No effect produced, other than that patient has so well tested the mustard as to have blistered both breasts. These abrasions were treated by collodion.

April 1st.—A succession of flexible metallic bougies, an eighth to a fourth of an inch in diameter, were passed through the cervix uteri.

4th.—A galvanic stem-pessary, an eithth of an inch in diameter, introduced into the cavity of the uterus.

12th.—Pessary still worn. Patient cupped at and below sacrum.

May 8th.—No effect having been produced, the intra uterine air-pump hereafter to be described was applied, and by it ℥ss of blood drawn from the interior of the uterus. This was early in the morning; the discharge continued throughout that day and night.

June 6th.—Patient reports herself as in all respects better. Air-pump again applied, and flow again produced; this time more readily than at first

When last seen, early in July, the patient had still further improved in general health and spirits, while her skin had begun to assume a more natural hue and feel.

Case 2.—Margaret ——, æt. 25, from Winchester, entered the Lying-in-Hospital, under my charge, October 10th, 1856.

Patient unmarried. Catamenia never appeared till her 21st year; discharge always very scanty, ceasing and reappearing at intervals during one or two days, and always attended with excessive local pain, which continued throughout the period. Recurrence of menses irregular, frequently passing five or six weeks, as is at present the case.

Dyspeptic, anæmic, hysterical; for which general treatment, hydrocyanic acid, cannabis indica, &c., &c.

Upon examination, some tenderness of abdomen, which was retracted. To the touch, the os seemed almost impervious; cervix somewhat elongated; uterus depressed. For this a ring pessary had formerly been introduced, with some relief. Ordered aloes, hot hip-bath, sinapisms to breasts.

October 12th.—No appearance of menses. Uterine sound introduced two inches, and followed by smallest sized galvanic stem-pessary.

The next morning the menstrual discharge was established, not very abundantly, but comparatively more so than ever before, and with very much less pain. It continued for two days.

22d.—To-day a series of four metallic bougies passed; all, even the largest, with ease.

November 15.—Bougies repeated. Yesterday and the day previous, galvanic pessary. To-day menstruates as before, and almost without pain.

The flow continued two days; and then, on November 17th, patient discharged from the hospital, much relieved.

In the spring of the present year, I was again consulted by this patient. The improvement above noted had continued for some time, and then had yielded to a recurrence of all the former distress. I therefore applied the air pump, the menses being overdue, and produced a free sanguineous discharge. This was several times repeated, at the proper intervals, in July for the last time, always with relief to the usual symptoms, and apparently with permanent benefit to the general health.

Art. 138.—*Autopsy of a woman whose Uterus had been removed thirty years previously.* By Dr. G. S. Goddard.

(*Nederlandsch Lancet*, and *Dublin Medical Press*, March 3, 1858.)

In the anatomical collection at Rotterdam a remarkable specimen is preserved; it is the uterus of a woman, in whom inversion of that organ had occurred in the year 1821, probably in consequence of forcible separation and removal of the placenta. After repeated but fruitless efforts to reduce the uterus, and when the symptoms had assumed a more and more threatening aspect, the part was tied by Surgeon Nortier thirteen days after delivery; and eight days subsequently the tumour below the ligature was removed with a pair of scissors; in the evening of the following day the ligature lay loose in the vagina, and exhibited the small opening through which the pedicle had passed. A month later the woman had quite recovered, menstruation did not recur, and the sexual passion was wholly extinguished. In the preparation the uterus is seen, of the size of the head of a child at full term, with an internal rough, flocculent surface, which, at the right side, in the neighbourhood of the fundus uteri (where the placenta was attached), has an opening with uneven edges, of about an inch and a fifth in circumference. Less extensive on the under side, this sacciform body ends with an opening of about two and a third inches. On the left side of the fundus portions of the Fallopian tube and of the round ligament, both, as well as the uterus, still enlarged, are seen; while on the right side the round ligament appears to be partly destroyed, and a much larger portion of the Fallopian tube is evidently also destroyed in its whole length. The woman died in 1850, in consequence of an acute disease, in which the genital organs were not involved. On opening the body the internal genitals, on a superficial inspection, presented a tolerably natural appearance, except that the right broad

ligament was rather tense, giving rise to a degree of obliquity; there was a great accumulation of fat in the connective tissue around the vagina and between the laminæ of the broad ligaments, in which no cicatrices, but only modified plaiting, were to be seen. The folds of the mucous membrane of the vagina were very strong and irregular; the vagina itself was much shorter than usual. Of the uterus only the cervix remained; the cavity of the latter was scarcely large enough to contain a lemon pippin, was very pointed, and was about three inches in length; the palmæ plicatæ were very strongly marked; the walls, which were thicker than usual, terminated as cut off; on the surface looking towards the cavity, was a white, firm, cellular, intervening substance, a couple of lines in length, and particularly dense on the right side, which as cicatrix had filled the space left open in the operation, and as well as the truncated substance of the uterus, had become covered with peritoneum. The free extremities of the Fallopian tubes were normal; each terminated in a cul de sac, the right was shorter than the left, and with the ovary was drawn strongly downward by a fold of peritoneum. The round ligaments were in great part deficient on both sides; the right was the shorter, and was surrounded with much connective tissue. The left could be followed a little further. The ovaries were more atrophied than even the woman's time of life should lead one to expect; the ligament of the right ovary was very small; that of the left still in a great measure existed. On either side there was one of those pediculated hydatid-shaped bodies, which Kobelt and Follin regard as remnants of the ductis Mulleri in the corpus Wolfianum; the right possessed a short and broad, and the left, on the contrary, a long pedicle.

ART. 139.—*Three cases of Vesico-Vaginal Fistula.* By J. BAKER BROWN, F.R.C.S., Surgeon-Accoucheur to St. Mary's Hospital.

(*Medical Times and Gazette*, April 17, 1858.)

CASE 1.—Mrs. K—, æt. 22. I was called to see this lady by Mr. Kisch, who gave the following history: About six weeks ago she was confined of her first child. The labour was very long and tedious, and the head remained in the pelvis for many hours without making any progress whatever, so at last the forceps were applied, and after a good deal of difficulty the child was abstracted. She progressed without any unfavorable symptom till the sixth day, when she perceived that her urine was constantly escaping, without her being in any way conscious of it, and that it did so in all postures equally. This continued without alteration, although her general health rapidly improved, and she was able to sit up in perfect comfort in every other respect at the usual period.

Upon examination, it was discovered that there was an opening, which would admit a middle-sized bougie, situated just at the junction of the bladder with the urethra.

The edges had not become at all callous, but were soft and yielding. Every drop of the urine escaped through this fistula.

February 2d, 1858.—I proceeded to operate, assisted by Dr. Priestly and Messrs. Kisch, Nunn, and Philip Harper. The patient being placed in the usual lithotomy position, and a full-sized wood bougie being introduced into the bladder through the urethra, so as to raise the fistulous opening well into sight, and to give a little support while the edges were being pared, I proceeded to split up the coats of the bladder, first dissecting a narrow strip of mucous membrane from the edges of the fistulous opening, and turning the

so dissected edges, without removing them, back into the fistula, thus obtaining a raw surface. Having done this, I inserted three double silk sutures at regular intervals through the split surfaces, and then tied these over two pieces of fine elastic bougie about an inch in length, and by this means the two raw surfaces were brought into close, equal, and exact apposition, and by careful manipulation no portion of mucous membrane was allowed to get between. The parts were then covered with dry lint, and the usual bent catheter, with an india-rubber bag attached, introduced, and left in the bladder.

Two grains of opium were given as soon as the effects of chloroform had a little subsided. The patient continued nursing her baby.

On February 8th I found that the same sutures had cut themselves out; when I syringed the vagina, which I did every day, they came away in the basin. There had been not the slighest escape of urine up to this day. She was therefore allowed to leave off the catheter. In four days, viz., the 12th, she was allowed to pass the urine herself every three hours. In two days she found she could go five, six, or eight hours at night, and then pass it naturally, none escaping involuntarily, but on beginning to dress or suckle the child, some escaped from the urethra, which seemed to come away from want of controlling power. On carefully watching the parts where the fistula was, and requesting her to cough, I could see a drop or two percolate through the united surfaces, just like the escape of perspiration from the pores of the skin. I applied caustic to this part, as the mucous membrane of the vagina had not yet covered over the parts operated on.

Thursday, 18th.—The nurse saw a small escape from the vagina; but from that time till the 22d there had been no escape, except occasionally in the day a drop from the urethra, although the patient walked about the room.

March 2d.—There has been no escape, and, on a most careful examination I found there was no sign of an opening; and, indeed, the vaginal mucous membrane had completely covered over the parts united, so as to leave no trace of the fistula. She walks about up and down stairs, and the urethra has perfectly recoved its normal action.

Case 2.—Elizabeth T—, æt. 36, from Cirencester, was admitted into Boynton Ward in February, 1855, and gave the following history: In November, 1854, she was taken in labour with her first child, and after forty-eight hours instruments were used, and she was delivered of a still-born child. She went on pretty well until about the ninth day, when a good deal of pain in micturition came on, and she continued in great pain throughout the next three days, when suddenly, on the twelfth day, she felt something give way, and her urine escaped through the opening and she became quite easy. From that period all her urine escaped in this way. On examination, per vaginam, I found a large opening extending transversely completely across the centre of the bladder, and so wide as to admit easily two fingers. The destruction of tissue was so great, and the fistula so gaping, as to render any present attempt at closing it quite out of the question. I therefore determined to adopt a plan recommended by Jobert de Lamballe, viz., to dissect the neck of the bladder from the pubes and its descending rami, thus allowing the anterior half of the bladder to go backwards, and thus relax the fistula. Great success followed this operation, and in April, 1855, I pared the edges and brought them together by Sim's mode of treatment. But little success followed the operation, and she was allowed to return into the country for the improvement of her general health, and in April, 1856, she was delivered of a living child.

On December 19th, 1856, she was again admitted into Boynton Ward,

and I performed Bozeman's operation with the result of closing eight tenths of the opening.

In five weeks I again operated, with but little success.

In six weeks more I operated, and again with little success, as great sickness always followed the use of chloroform.

So, in three days I again operated without chloroform, and the result was the closing of a third of the fistula. After this she returned into the country.

December 7th, 1857.—She was again admitted, and I performed Bozeman's operation; with the result of a further reduction in size of the fistulous opening. She then went again into the country.

On February 15th, 1858, she was admitted into the Boynton Ward, and stated that since the last operation she had been able to retain the urine during the night, and some even during the day, whilst she was sitting quite still.

17th.—I carefully denuded the edges of the fistula, and slit up the coats of bladder all round, and then brought the raw surfaces together by silk sutures and quills.

20th.—She felt the sutures give way, and the urine make its escape.

24th.—She was taken into the operating theatre for the ninth time, and without chloroform I revivified the edges, and, passing three silver wire sutures, closed them down with Bozeman's button.

25th.—No escape.

26th.—No escape. Some headache and slight pain in the vagina.

27th.—Nurse thinks a little urine escaped last night and again this morning, but I examined and found that it evidently came from the urethra. The sphincter having relaxed from the presence of the catheter.

March 4th.—Bowels were well moved. No escape of urine. Catheter removed.

6th.—The button was removed, and the whole opening was found beautifully closed and quite firm.

10th.—On most careful examination, the fistula was found quite closed, and she can pass and retain her urine as well as she ever could before the lesion, and she is consequently in good spirits and very grateful.

Case 3.—Mrs. N—, Rotherhithe, æt. 28, consulted me in March, 1858, and gave me the following history: "Four years and a quarter since, was in labour of her first child from Wednesday evening until Sunday morning, when Mr. Peete was called in, and delivered her with forceps of a still-born child. Directly after she was made comfortable in bed she found the urine escape through the vagina, and from that time it has always escaped except when lying on her back. Three months after the accident she went into Guy's Hospital, and was there for nine weeks. She then went to a hospital for diseases of women, and was there recommended a large blister to be put on her back so as to make a sore; but, as her husband thought that could not heal the hole in her bladder, she did not apply it, and left off attending the hospital. Mr. Peete had repeatedly advised her to see me."

On examination, I found a small fistulous opening at the fundus of the bladder, close up to the os uteri, which was also much torn. The fistulous opening was about the size of an ordinary pocket-case director.

On March 3, I proceeded to operate, assisted by Messrs. Hume, Peete, Philip Harper, and my son, Arthur Brown. Placing her on her knees and face, without chloroform, I carefully pared the edges, removing as little mucous membrane as possible, and then performed Bozeman's operation; but, instead of bringing the edges together transversely as usual, I brought

them together horizontally. The bent catheter, with bag attached, was then introduced, and opium given.

4th.—No urine has escaped.

6th.—All well, except sickness caused by the opium, which is therefore discontinued.

7th.—No escape. Bowels opened by an enema.

9th.—Still sick. A dose of calomel, followed by a seidlitz powder.

11th.—Quite well. No sickness and no escape.

13th.—I removed the button to-day, and found the opening perfectly and entirely healed.

ART. 140.—*On Coagula formed in the veins during the puerperal state, and their occasional transference into the pulmonary artery.* By Dr. GRAILLY HEWITT.

(*Lancet*, Dec. 19, 1857.)

The various morbid appearances presented by the veins and their contents in cases described as "phlebitis," have been always objects of much interest, and up to within a very recent period were taken as evidence of the existence of inflammatory action in those vessels. The author considers that the researches of Virchow conclusively proved that the appearances in question were due to the formation of coagula in the veins, and the subsequent transformation through which these coagula had passed. According to the views of Virchow, the study of the changes hitherto spoken of as phlebitis, is in reality the study of the "thrombus," as the coagulum is termed, and of its metamorphoses. In applying these views to the consideration of those cases of disease of the veins which are apt to occur after childbirth, and taking, with Virchow, the starting point to be the formation of the coagulum, it was necessary to inquire, *What are the circumstances which may lead to, or favour, the formation of coagula in the veins during the puerperal state?* Amongst these are enumerated:

1. The large amount of fibrin in the blood, both positively and relatively, during pregnancy; a condition predisposing to coagulation; and possibly, also, certain other morbid conditions of this fluid, as uræmia, &c.

2. The mechanical effects of the pressure of the uterine tumour, which, leading to congestion of certain parts—the vagina, rectum, lower extremities, &c.,—might favour coagulation; also, the impediment to the descent of the diaphragm leading to distension of the right heart and other parts of the venous system.

3. Pressure, unusual in amount or duration, on the large venous trunks of the abdomen, produced by the head of the child in its passage into the pelvis, the head being too large, or the passage contracted.

4. Deficient contraction of the uterus and of the large venous plexuses situated near or (Virchow) *after* delivery.

5. The most important, perhaps, the presence of the "physiological coagula," as they may be termed, which close up the uterine veins at the point of attachment of the placenta, and which must extend a

variable distance, and have a variable size according to the degree of uterine contraction.

6. The morbid conditions of the blood liable to be produced after delivery, owing to the occurrence of hæmorrhages, and other causes.

A description is then given of the morbid appearances usually observed in the veins after childbirth. Affections of the veins generally occurred in cases where some of the causes just described as leading to coagulation had been present. In most of these cases the veins first affected were those leading from the uterus and ovaries; the coagulation begins in the veins of these parts, and travels onwards towards the heart. The coagulum always terminates, according to Virchow, whose description is in conformity with those of Dr. Robert Lee and others on this point, in a rounded extremity, which projects a little *beyond* the next entering vessel, and by further deposition of fibrin the clot extends. The coagulum also travels backwards, occluding after a time the veins which enter an already blocked-up trunk. The iliac, femoral, and other veins of one or both sides may thus become occluded by a coagulum extending from the uterine veins of the same side, producing at this stage the disease called "phlegmasia alba dolens." The "physiological" coagula may then give rise to coagula of a pathological character, other circumstances favouring the production of the latter being present, or certain states of the uterine surface following delivery may occasion a like issue of the case. The clot once formed undergoes two kinds of changes. It shrinks, becomes decolorized, adherent, and, with the vein, is reduced to a cord-like substance (adhesive phlebitis); or it softens, breaks up, and the result is, the formation of a fluid in many respects resembling pus (suppurative phlebitis). The outer non-softened portions of the clot in the latter case remain as false membranes adherent to the vessel wall. The affections of the veins in the puerperal state are only peculiar in respect of their causes; the coagula, once formed, are liable to the same kinds of transformation as in other cases. The observations of Virchow respecting the constant presence of the "continued congestion," are of especial interest in relation to the *occasional passage of portions of altered coagula into the pulmonary artery*. This continued portion projecting into the still patent vessel, undergoes, but more rapidly under certain circumstances than the other parts, the "thrombus metamorphosis." It becomes adherent to one side of the vessel, and the projecting part may, at a certain stage of its metamorphosis, be broken off and carried away by the current of blood into the pulmonary artery. Death, more or less sudden, and attended, according to Virchow, with symptoms of a peculiar asphyxia, followed the passage of these altered coagula into the vessel, or its branches. Dr. Simpson has collected nine cases in which death, more or less suddenly, occurred a few days after delivery, apparently brought about by the obstruction of the pulmonary artery by transformed coagula introduced from the veins. Probably death more often occurs from this cause than is generally imagined, the cause being overlooked. Lastly, the author concludes that the pulmonary artery might be occluded by clots liable to be formed in puerperal women reduced by hæmorrhages, &c., these coagula not having existed as such for a sufficient

time to have undergone the transformations previously alluded to, and not having been formed quite in the same way. These clots, at first perhaps small, would increase rapidly by further accretion of fibrin around them, and finally obstruct the pulmonary arteries to such a degree as to produce death.

Art. 141.—*Aphthous Fungus on female nipple.* By Dr. Küchenmeister.

(*Wochenbl. der Gesell. der Aertze zu Wien.*, June 29, 1857; and *Med.-Chir. Review*, April, 1858.)

The author, whose authority regarding parasitical formations is so well known, entering upon the question whether the oidium albicans takes possession of the nipple of the nurse, shows that the sore nipple may be the seat of this fungus. He gives a case in which the aphthæ were found on the cracked nipples of a person who had been suckling an aphthous child. He quotes at length the microscopical description of a fungus found by Hoffmann and Leuckart, which had a double form, one having all the characters of an oidium, and the other showing slightly septate threads, which in their lateral branches developed sporangiæ (sporidia), out of which the spores proceed. He states his opinion that the structures known as aphthæ exhibit mostly two forms of fungus; one truly forming sporangiæ (sporidia) with spores, and one only forming coccidiæ; the latter exhibiting what was ordinarily termed oidium albicans. This oidium he considers to be only an undeveloped form of the other, which is probably a leptomitus.

(c) Concerning Diseases of Children.

Art. 142.—*Three cases of Infantile Apoplexy.* By Dr. Joseph H. Wythès, of Port Carbon, Pennsylvania.

(*North American Med.-Chir. Review*, Jan., 1858.)

Case 1.—On the evening of May 31st, 1852, I was called to see the child of Mr. Shaefer, about 3 years old, who was complaining of pain in the left ankle. It was not swollen or discoloured, but the pain seemed excessive, especially on motion. The parents supposed it to have sprained its ankle while playing on the step. I ordered a stimulating liniment, and, as it had been costive, a dose of castor oil.

The next morning I was informed that the child had been found dead, lying in the bed between its parents, without awaking either. On examination I found the wrists and ankles of the child strongly contracted; the left leg, the arms, and the back considerably discoloured with dark purple blood; and the left leg slightly swollen. As it was the wish of the family to have a post-mortem examination, I called in Dr. James Parker to assist me.

On removing the calvarium, which was done with as little violence as possible, an extravasation of blood was observed between the cranium and dura mater, perhaps half a fluid ounce. The vessels of the membranes

were much injected, and the posterior part of the septum had a large clot of blood in it. The membranes were also in many places strongly adherent. The white substance of the brain was full of bloody dots or points, with the appearance of infiltrated blood in the posterior lobes, particularly on the right side. The right ventricle had in it a clot of blood, with serum.

The viscera of the chest appeared healthy. The liver was much enlarged, and contained a few cysts. The stomach was disproportionately small. The appearance of the intestines was generally healthy, but about one-half of the ileum was distended with gas. A few tubercles were observed in the mesentery.

Case 2.—Nov. 4th, 1855, was called to see the child of S. Landis, who had died suddenly. I officiated at its birth exactly three months previously. It was a vigorous male child, and had always been in good health, with the exception of occasional attacks of colic, for which no medical attendance was deemed necessary. On Saturday night, Nov. 3d, the family retired to bed at 12 o'clock, and the child seemed as usual. At 5 or 6 o'clock in the morning the mother laid him off her arm, as she supposed, asleep. After breakfast, wondering he slept so long, she went to rouse him, and found him dead.

When I first saw him, about 10½, a.m., he was quite cold. The muscles of the hands and feet were quite contracted, but particularly so on the left side; the mouth was drawn slightly awry; and the whole posterior surface from head to foot was of a purple hue. I suspected cerebral disease, and asked for a post-mortem examination, which was granted. I was assisted by my brother, Dr. Wm. W. Wythes, Dr. G. Brown, and in the latter stages by Dr. J. S. Carpenter, the last-named gentleman having arrived too late to inspect the brain.

The vessels of the arachnoid and pia mater were considerably congested, and the whole cerebral substance was softened, being about the consistence of melted butter. A little serum was observed at the base of the left hemisphere of the cerebrum, but nothing abnormal in the ventricles. The membranes of the cerebellum and medulla oblongata were strongly congested.

The lungs, heart, and abdominal viscera were quite healthy, though the latter were fully distended with gas.

Case 3.—Dec. 20th, 1855, was called to make a post-mortem examination of the child of J. R., aged three months, which had been found dead in its bed. Was assisted by Dr. G. Brown.

Muscles of hands and feet much contracted. Foam issuing from mouth and nose. Face purple. Purple congestion of the skin of the back and limbs, probably from gravitation.

The membranes of the brain healthy, but its substance much congested. On slicing, it seemed full of bloody dots. A small clot of blood was found in each ventricle. Lungs congested. A serous effusion observed in the pericardium. Liver large, and intestines full of gas. Stomach and bowels otherwise healthy.

Art. 143.—*On the lately prevailing diphtheritic affection.* By Dr. William Camps.

(*British Med. Journal*, March 20, 1858.)

This affection has been variously designated—as croup, croupy disease of the throat, malignant sore throat or cynanche maligna, diphtheritis or diphthérite, throat affection, prevalent sore throat, &c. Under one or other of these terms, there could now no longer be any doubt that a disease lately prevailed, and did still exist, with more or less intensity, in various parts of the United Kingdom, including the metropolis. The public health authorities had, in their periodical documents, of late solicited information respecting it, under the term diphtheria. Dr. Camps states that his attention was directed thereto, in the first instance, by noticing in one of the quarterly returns of the Registrar-General an unusually large number of deaths from croup, as having occurred in a rural district, with the population and locality of which he was tolerably well acquainted.

It was well known that a form of pharyngeal inflammation had been investigated and described some years ago by M. Bretonneau, of Tours, and that to this disease he gave the name of *diphthérite*. It was probably from the analogy observed between the disease lately prevailing here and that described by M. Bretonneau, that the former was now commonly spoken of as diphthérite, diphtheritis, diphtheria, or diphtheritic disease. M. Bretonneau and some other French authorities appeared to have regarded it as almost, if not absolutely, identical with the ordinary inflammatory croup of this country; and Dr. Watson, in his lecture on croup, appeared to regard Dr. West as holding the opinion that diphthérite is a variety of croup—an opinion in which Dr. Camps did not concur. Whether in this country or in France, this disease had heretofore appeared rather as an epidemic than as a sporadic affection; and the author was of opinion that many of the cases of throat disease which proved so fatal not long since at Boulogne, might have been cases of diphthérite. Here it assumed quite an epidemic character; and in all the severer and fatal instances of the disease in this country that had come to the author's knowledge, such cases had occurred in tolerably rapid succession as to time, and in tolerably close proximity as to place. He hesitated to commit himself without reserve to the question of its contagiousness, although he believed that practitioners in France entertained that opinion.

The type of the disease in its severer forms, he considered to be essentially asthenic or adynamic; and, therefore, attended with more or less languor, depression, and diminution or impairment of vitality, thus indicating most clearly the appropriate mode of treatment. Of late, in many of the metropolitan dispensaries and hospitals, stomatitis had been very prevalent; and in the judgment of the author, there existed between stomatitis and the diphtheritic affection, now under consideration, a very close analogy or resemblance. He regarded the

former as the shading off into a milder form of the latter, yet both as the result of the same morbific general cause; so that the difference between the two should be considered as one of degree, rather than of kind. The tendency to the production of plastic, pseudo-membranous exudations, as observed in these diseases, was one mode of denoting the existence of an anadynamic or low form of inflammation; and the correct appreciation of this condition was of the highest importance in the treatment.

A description of the disease, as detailed by M. Bretonneau, was then briefly adverted to by Dr. Camps, who then stated that he was indebted to Dr. H. W. Fuller, of St. George's Hospital, for having drawn his attention to a record of cases of diphtheritis that had occurred in 1849 at Haverfordwest, in the practice of Mr. Brown, of that place, and which that gentleman had communicated to the 'Medical Times and Gazette.' Mr. Brown in that year had had no fewer than two hundred cases, forty of which had proved fatal; and in some of these death had ensued in a few hours from the seizure, others lingered on for some days. In its course, Mr. Brown said that some of the little sufferers appeared to get through it easily; while others lingered for weeks with slight but deceitful symptoms. The treatment adopted by Mr. Brown was referred to by the author at some length. He affirms that he did not lose a patient in whom he succeeded in establishing ptyalism. That gentleman advocated the topical application of solution of nitrate of silver; in regard to constitutional treatment, he depended upon calomel in combination with ipecacuanha, in doses varying from half a grain of each, every four or eight hours. He found, moreover, emetics of great service in the first stage of the disease; they then always relieved the distress in breathing, carrying away large quantities of mucus. The only cases that proved fatal under his care were those in whom the pharynx and the larynx were simultaneously affected. The post-mortem examination of all the fatal cases that had come within the author's knowledge, showed the pharynx, tonsils, larynx, trachea, and upper part of the bronchi, to be more or less coated with plastic, pseudo-membranous exudation. Reference was made by the author to the occurrence of the disease in various parts of the country; namely, in Essex, Norfolk, Lincolnshire, Staffordshire, Worcestershire, Lancashire, Devonshire, and in the metropolis.

With reference to the cause or causes of this and similar diseases assuming an epidemic character, it was usual to regard such as the result of some specific epidemic influence or agency, operating upon the human system through the blood. This explanation, or attempted explanation, the author stated, was by no means satisfactory to his own mind, however much so it might be to the minds of others.

From all the facts or particulars which Dr. Camps had been able to collect respecting this disease, he was disposed to draw the following conclusions:

1. A disease very analogous to, if not identical with, that described by M. Bretonneau as diphthérite, had existed in this

country, and had prevailed with more or less intensity during the last few years.

2. This disease was mainly, if not essentially, of an asthenic, adynamic type; and characterised in the severer cases by the formation of plastic pseudo-membranous exudations.

3. This disease was primarily pharyngeal as to its seat, and not laryngeal, except secondarily, and by complication; thus differing anatomically from croup.

4. Its difference from stomatitis was a difference of degree or intensity, rather than a difference of kind; and that one chief point of difference from the malignant sore throat, consequent upon scarlatina, consisted in the tendency to the formation of plastic pseudo-membranous exudations.

5. In many instances this disease possessed the characters of an epidemic disease.

6. Its low adynamic type clearly indicated the mode of treatment to be adopted; which, in the author's judgment, should be both topical and general. The topical consisting of free applications of a strong solution of nitrate of silver to the parts affected, composed of from one scruple to two drachms of the nitrate to one ounce of distilled water; or similar applications of chlorine or hydrochloric acid; the general treatment comprising the repeated administration of chlorate of potassa, with chlorine, or a combination of cinchona bark, or its alkaloid salts with the mineral acids; and in the severer cases, calomel in repeated doses, so to produce ptyalism. Emetics in the early stages of the disease have been given in some cases, and with good result. In addition, the vital powers of the system must be well sustained by liberal administration of wine, stout, beef-tea, and other invigorating means.

Art. 144.—*On Cholera Infantum.* By Dr. E. H. Parker.

(*American Medical Monthly*, May, 1857.)

In a paper read before the New York State Society, February 4th, 1857, Dr. Parker discusses the following propositions, as those generally held by the profession, or, at least, as generally given by our systematic writers:

1st. "Cholera infantum is a disease peculiar to this country, though not entirely unknown in Europe.

2d. "That cholera infantum is almost entirely confined to large cities, and is rarely seen in the country.

3d. "That the symptoms, course, and pathology of the disease entitle it to a separate place in our nosological tables.

4th. "That the treatment is to be distinct from that of diarrhœa on the one hand, and dysentery on the other.

5th. "That perhaps the most alarming symptoms are those of hydrocephalus, occurring in the advanced stages."

With reference to the *first* proposition, he quotes descriptions by Dr. West, of London, of an affection called *inflammatory*

diarrhœa, and by M. Bouchut, of Paris, *entero-colitis*, either of which would answer for a description of the cholera infantum of this country.

The *second* proposition he deems incorrect, and adduces facts obtained from the mortuary statistics of the last century to show that the affection is as fatal in the country as in the city.

As regards the *third* proposition, the writer arrives at the conclusion that it is impossible to draw a line, on the one hand, between cholera infantum and simple diarrhœa, and, on the other hand, between cholera infantum and entero-colitis. He claims, therefore, that cholera infantum is, in fact, a name given to a particular condition arising in other diseases.

The foregoing conclusion respecting the *third* proposition involves a denial of the *fourth;* for if there are no peculiar symptoms, course, and pathology, there is no separate and peculiar treatment.

In commenting on the *fifth* proposition, the writer calls attention to the distinction between the *hydrocephaloid* and the *hydrocephalic* condition; the former, as described years ago by Marshall Hall, and more recently by Gooch and West, being the condition occurring in the course of cholera infantum, and demanding the treatment due to anæmia and exhaustion, and not to encephalic inflammation.

In conclusion, the writer presents the following propositions as expressing his views, in contrast to the propositions already given as expressive of the opinions more commonly entertained.

"1. The condition to which the name of cholera infantum is given is not a separate and peculiar disease, but a collection of symptoms attendant on certain stages of other diseases.

"2. This condition is recognised by European authors in their treatises, though very properly it does not receive a separate title.

"3. That the principles of its treatment are the same as those of diarrhœa and entero-colitis.

"4. That hydrocephalus is rarely, if ever, an attendant or sequent of it, but that the hydrocephaloid disease is very usual."

Art. 145.—*Modification of the operation for Imperforate Anus.* By Mr. Redfern Davies.

(*Edinburgh Medical Journal*, March, 1858.)

The following remarks are appended to a case in which the ordinary operation for imperforate anus was performed.

"In the 'Archives Generales' for the months of May, June, and July, in the past year, is a translation of an essay by Dr. Herman Friedberg, (*agrégé* to the Berlin Faculty of Medicine) on artificial anus. The subject is discussed at length; it is the most complete *resumé* of cases to be met with in any language; and, from the high character of the author of the paper, much weight is attached to his

doctrines and practice. After commenting upon the advantage of an opening in the perineum, as opposed to one in any other site, M. H. Friedberg goes on to say, that simple opening of the rectum through the perineum ought in the present day to be completely abandoned. 'I do not know,' says he, 'a single case in which an opening by a trochar has preserved life permanently, when the closed extremity of the rectum has been distant from the normal site of the anus;' and, furthermore, he cites in corroboration of his opinion the words of M. Roser, who 'has not found any detailed account, not even one, which tends to show that any decided improvement has been obtained by the employment of the trochar, when the rectum has been absent a distance of one inch.' The operation that he strongly contends for is that of Amussat, viz., the bringing down the gut when an opening has been made in it, and stitching it to the outlet in the perinæum. In support of this, he adduces two cases in which the rectum was distant one inch and a half and three inches respectively (they, however, died, the one in six, and the other in nine, months); together with the four successes of Amussat, which, as Erichsen observes, singularly all occurred at Brest. Certainly, the professor does not prove much by numbers. The advantages that he claims for it are beyond doubt good and substantial: viz., that there is a mucous membrane lining the whole tract of the canal; that the evacuations are more easily accomplished; that the natural tendency in canals not so provided to gradually contract, and finally become completely closed, is prevented; that the irritation and danger arising from the contact of effete matter with tissues not intended for such contact is also obviated. Against so formidable an array of arguments in favour of this line of conduct, the reasons that induced me, at the time when the rectum was opened, to forego even the attempt to bring it down were—that I deemed the distance, two and a quarter inches, at which it was situated from the external opening, to be so great, as to preclude the possibility of so doing. Bound down as the rectum is by its fold of peritoneum, the meso-rectum, I feared to encounter the almost certain dangers of peritonitis, or pelvic cellulitis, which must inevitably be the probable consequence of the laceration of its connective tissue, to permit of its descent for such a distance. Besides, at such a depth, how great an uncertainty there must be as to what the forceps might seize hold of. A free outlet having been established, the exigencies of life were provided for, and the vital functions were, for the time, fully as well performed as they could have been, even had the gut been brought down. So far the operation consisted in one of simple puncture; and had it been intended for it to remain as such, the somewhat violent and dogmatic fiats of the two German *savans*, quoted a few sentences back, would be, as I shall directly show, not absolutely justifiable. One case by Schleiss (in 1853) is narrated as successful; and up to the present hour its result has not been impugned. Another, where the rectum was absent about two and a half inches, I had the opportunity of witnessing while in Paris last year; the case was under the care of M. Maisonneuve, and presented to the Academie de Chirurgie, also

reported in the *Gazette des Hôpitaux* (*vide* Nos. 22 and 53, 1857). There is at present—aged some forty years—a gentleman in this town who was so operated upon, and who walks about a living monument of its success. The fact, therefore, that in certain isolated cases a fortunate issue results is certain; and it is also as certain that they are very, very much the exception to an all but universal law, that children born with imperforate anus die. To what, then, shall we attribute this result? The child is born, to all appearance, healthy, save this defect; which only kills by its mechanically preventing the exit of effete matter, and its attendant consequences. It would, therefore, appear that to overcome this difficulty would be to solve the question; and doubtless such will be the result when the operative procédé shall be improved, and so in proportion will lives be saved, save in those cases where the vital powers of the child are below par (as in part evidenced by the congenital deformity), and of themselves unequal to carry on life, much less when this embarrassment is added to them.

"With all due deference, therefore, to the opinions of others, and in the hopes that it will receive whatever of attention it may merit in their hands, I beg to lay before the opinion of my more experienced professional brethren the following modification in the operative interference usually adopted in these cases, which I had intended, had the patient survived a sufficient length of time, to carry into effect. As far as can be judged by the evidence of the published cases, death is the consequence of different causes, according as the rectum is, or is not, brought to the opening of the wound. If it is, death ensues from the injuries inflicted by so doing. If it is not, death ensues, but secondarily, in consequence of the difficulty to defecation being only partially removed. I would propose, therefore, to combine these two procédés, and endeavour to obtain, by extending the operative measures over a considerable time, immunity from the evils of both: viz., supposing, in the first instance, that an opening had been made (as was done) into the rectum, nature being relieved, had not other influences intervened, the child would have lived *pro tem.;* but then comes into consideration the subsequent difficulty in passing the stool, owing to a gradually narrowing of the passage. All this is said to be due to the mucous membrane not being continuous with the outlet.

"To remedy this, therefore, when the parts have recovered from the effects of the first operation, introduce a pair of forceps, and, seizing hold of the lips of the opening into the rectum, endeavour to bring it down, not by one vigorous and decisive holding on by the forceps, and by main force bringing the gut to the external orifice, but by gently and repeatedly solicitating its descent, introducing the forceps at certain intervals, and gradually endeavouring to accomplish the end. If the rectum can be so moved from its position, and be brought lower down in the pelvis (and so by repeated attempts it has been proved) by one forcible extension, and even that sometimes crowned by success, how much more likely is it that success should attend the proceeding, when, by the almost imperceptible tractions made upon it,

the great causes of failure, viz., peritonitis and pelvic cellulitis, would be removed, owing to the small amount of disturbance that would take place in the soft parts. Although, as far as I am aware, this procédé by successive stages has never before been broached in any writings on the subject, the idea was taken from a case reported in the 'Lancet,' vol. i, p. 493, 1846, in which an incision was made into the perineum for a distance of three inches; and on the second day an attempt was made, by gently pulling, to draw down the gut, which was not, however, fastened to the external opening. One month afterwards the child was doing well.

"I am fully aware that there is a vast deal of essential difference between this procédé and the one I advocate; nevertheless, accomplishing the end by successive stages, is in this case shadowed out, and will I trust, assume a definite status in surgery."

REPORTS

ON THE

PROGRESS OF THE MEDICAL SCIENCES.

January—June, 1858.

The intention of the following Reports is to pass in review the principal additions to each department of Medical Science, which have been placed on record during the preceding six months. It is not contemplated that they should be confined exclusively to the notice of what is new; any fact or doctrine which may be considered practically useful, will, although not strictly novel, be regarded as worthy of commemoration. It must be obvious to all who are aware of the immense mass of information which is almost daily put forth by the medical press of this and other countries, that the notice of every subject would be an impossibility. It therefore devolves upon the writers of each Report, to select only such articles for retrospection as may possess superior recommendations, either of an intrinsic character, or in relation to the main end and aim of all medical knowledge—the alleviation of suffering and disease.

I.

REPORT ON PRACTICAL MEDICINE, &c.

Hygiène; or, Health as depending upon the conditions of the Atmosphere, Foods, Drinks, Motion, and Rest, &c. By Jas. H. Pickford, M.D. (London, Churchill, 1858.)

Dr. Pickford is endeavouring to supply a deficiency in the medical literature of this country by the publication of a comprehensive work on hygiène. He professes "to present to his professional brethren, to the medical student, and to the public at large, a plain and faithful transcript of accurate research, observation, and experience; a simple and exact statement of facts and admitted truths, together with such inferences and deductions as the subject may appear to warrant and demand." (p. x.)

The first part of this work, which is now before us, "embraces the physics of the atmosphere, the seasons, temperature, rain, winds, and pressure; the respiration of plants and animals, the circulation of the blood, the chemistry of respiration, and animal heat; infection, contagion, malaria, sewerage, drainage, ventilation, and climate, in connection with disease." Each subject is treated in a series of short paragraphs, which aim at axiomatic brevity—a style which is not only unsuited to the majority of the topics which come under the head of hygiène, but which makes the book almost unreadable, and leads too frequently to the statement of mere and often doubtful opinions as ascertained facts.

The strictly hygienic portions of the chapters on the Atmosphere Seasons, Weather, and Circulation Respiration, are very scanty, and imperfect, and the physical and physiological details are generally given in an isolated fashion, and without any explanation of the mode in which they bear upon the subject of hygiène, hence the book will be useless as an introduction to the study of that branch of medical science. Moreover, a singular confusion of thought prevails throughout the work. We are told, for example, in § 241, that "the atmosphere abounds with electricity, which it derives from the thermo-electric agency of the earth;" but, in § 243, we are informed that "the sources of electricity in the atmosphere are to be found in the chemical changes which often accompany the evaporation of water and the respiration of plants, and in combustion." In § 342 it is asserted

that the inhalation of ozone produces "inflammation of the mucous lining of the bronchi and air-passages, catarrhs, coryza, possibly 'hay-fever,' intense pneumonia," &c.,—an unsatisfactory and as yet unproved theory being thus given as an ascertained fact. In the chapter on Seasons it is stated, § 400, that "the termination of this (winter), and the commencement of the spring quarter, are most favorable to the development of scarlet and typhus fevers;" according to § 418, "typhus fever commences in May;" in § 442, it is asserted that "typhus fever and diarrhœa prevail throughout the summer quarter;" and in § 460 it is stated that "the common current of this (the *autumn*) quarter, is most favorable to the development of diarrhœa, and scarlet and typhus fevers."

In the chapter on Infection, Contagion, and Malaria, we are told (§ 913) that "by *contagion* we understand the transmission of an infectious malady from the sick to the healthy, by pollution of the atmosphere, by the effluvia of emanations from, or by the exuviæ of, their bodies; or, by means of *fomites* imbued with the specific poison; or, by immediate or mediate contact. In the latter case, the humidity of the atmosphere becomes a medium of contact." It is stated, in § 914, and illustrations are given in support of the statement, "that it seems to be a general law of animal nature, at least among the *mammalia*, that the accumulation and stagnation of the exhalations of the living body produce disease;" but, in § 915, we find the extraordinary conclusion, that "*contagion* may therefore be designated a specific virus originating within the body." (!)

Other instances of confusion of thought occur in the chapter, as for example, in §§ 921 and 922, but we pass on to the conclusion which Dr. Pickford arrives at in reference to vegetation and malaria. He considers (§ 1021) that it is "demonstrated that the *absence of vegetation may be received as a tolerably sure indication of the presence of malaria*, whilst, on the other hand, it has been already shown that the *absence of malaria may be fairly inferred from the presence of vegetation.* Nevertheless, we are subsequently told (§ 1092), "of the salutary effects resulting from the admission of free ventilation to our military stations in the West Indies, by the cutting down and removal from their immediate vicinity of the superabundant vegetation, rank grass, and brushwood, in which malaria is prone to become entangled."

The section on Drainage, and the chapter on Ventilation, teach neither the principles nor the practice which should guide us in endeavouring to obtain good drainage and effective ventilation, and the chapters on Climate, and Climate and Disease, are of a character with the rest of the book.

Fibrine in the Blood; its significance examined in reference to disease. By T. Inman, M.D., Physician to the Northern Hospital, Liverpool. ('Liverpool Medico-Chirurgical Journal,' January, 1858.)

The evidence contained in this paper goes far to establish Simon's conclusion that the fibrine of the blood is a result of retrograde metamorphosis, and more closely allied to excrementitious than to nutri-

tious products; and in that way to necessitate an important change in the matter of treatment—for if fibrine is not nutriment, if it is not fuel, and if it is merely excrementitious—ashes rather than fuel—then the increased quantity of fibrine in inflammation is no longer an argument that the blood is too rich in inflammation and that depletion is demanded, but just the contrary.

In the present paper Dr. Inman proposes to inquire—1. What analyses have taught us respecting fibrine in individuals in a comparative state of health. 2. What observation gives us respecting fibrine under certain conditions. 3. The relation of fibrine to diseases. 4. The conclusions to which the foregoing considerations lead.

1. Beclard has shown ('Gazette Médicale de Paris,' January 22d, 1848) that there is in man a larger proportion of fibrine in venous blood than in arterial, differing in this from previous observers. This at once suggests the notion that fibrine is a result of "waste" of the tissues—that it is an effete product. In the lower animals, analyses show on an average an equal quantity of both arterial and venous blood. The quantity of fibrine is increased by fasting. Thus a horse had, when first examined, 5·1 parts in 1000 of fibrine, and after four days fasting had 9·0 parts. The quantity of fat in the blood was also augmented from 2·2 to 4·8 per 1000.

Our next inquiry branches out naturally from this. If it be true that the fibrine is a quasi excrementitious substance, how does it happen that it has such a character for rapid organization. It has always been assumed that coagulable lymph, as it is called, owes its characters to the fibrine which it contains. But is it so? All mere assumptions are to be mistrusted. Is not this one? Where do we find the largest amount of pure fibrine in the body under any circumstances? In an aneurismal sac, and sometimes in the substance of an enlarged spleen. Leaving the latter, we turn to the former, and ask what is the history of the fibrine there? We are almost all of us familiar with its appearance. Do we find it laminated, as if deposited as sand or mud would be from a current debouching into a lake; or do we find it organized and united into a homogeneous whole, resembling false membrane, cellular tissue, &c. Dr. Inman is not aware of a single instance in which the fibrine has become organized, though in constant contact with blood. Pursuing the same train of thought, we ask, What becomes of the fibrine in the aneurismal sac, where the artery has been tied, and the aneurism begins its process of cure? In some cases the fibrine, after a time, acts the part of an irritant, and produces abscess; and in others the more fluid parts are gradually absorbed, leaving the fibrine as a dense mass behind. It rarely disappears *in toto*, and never forms false membrane or areolar tissue.

Again, where large quantities of blood are effused into the pleural or scrotal cavity, the fluid remains for years without any attempt at organization, and even when blood is effused into the parenchymatous parts of the body, the fibrine undergoes no structural change. Surely if fibrine were as prone to organization as it has been supposed to be, we should scarcely have an extensive bruise occurring without the structure of the part undergoing more or less permanent alteration.

It is then tolerably clear, that the lymph thrown out during inflammation is not pure fibrine, and that the remarks applicable to one are not applicable to the other.

We next turn to the young of animals whose growth is rapid, and in whom there is little if any excrementitious matter for a considerable period. There is no fibrine in the egg; there is materially less fibrine in the blood of the umbilical artery of the fœtus than in the venous blood of the mother. Its blood-globules, too, are in excess, and we may state as a general rule, deducible from all the analyses we have been able to consult, that where there is a diminution in the normal quantity of the fibrine, there is always an increase in the red corpuscles. The blood of a puppy a day old is richer in globules, and poorer in fibrine, than one three months old.

A Day.	Three Months.
165 globules	97
0·2 fibrine	2·4

There is some difficulty in ascertaining the normal quantity of fibrine in an adult, as it varies materially according to circumstances; but upon taking the mean of a great many analyses, we may set down the high average to be 2·5, two and a half parts per 1000 in man, and 2·3 in woman; the quantity in the former being possibly larger on account of greater wear of the system. The globules are, in the same manner, estimated at 132 per 1000 in man, and 120 per 1000 in woman.

The proportions may vary as follows, without any apparent variation in health:

	AVERAGE.		MAXIMUM.		MINIMUM.	
	Man.	Woman.	Man.	Woman.	Man.	Woman.
Globules	132	120	186	163	112	70
Fibrine	2·5	2·3	4	3	2	1·8

In these cases we have sometimes excess of globules, and diminished fibrine, and sometimes excess of both. It is possible that accidental circumstances, such as fatigue or exertion, may explain this.

Let us, however, ere we give details about the human blood, take some notice of that of the horse. The average quantity of fibrine in its blood is five per thousand when in health; when poor, weak, decrepid, fit only for the knacker, it rises to eleven per thousand, and we have before shown that a fast of four days would increase it from five to nine parts. In our own species we find the same thing—the weaker the individual, the greater the amount of fibrine.

Tabulating the results according to the relative maximum increase of the fibrine—

Fibrine increased.	Per cent.	*Corpuscles diminished.*	Per cent.
Leucocythæmia (one case)	1100		
Cancer	600 to 700		74
Phthisis	250 to 580		12
Acute rheumatism	190 to 550		30
Pneumonia	500		80
Bright's disease	450		53
Cholera	440		0
Glanders	400		10
Bronchitis	300		30
Convulsions	250		25
Scarlatina	240		
Sea-scurvy	240		50
Leucocythæmia, general	230		50
Hemiplegia	200		
Typhus	150		0
Erysipelas	150		25
Quinsey	125		25
Lead cachexia	120		70
Pleurisy	100		
Puerperal convulsions	100		
Puerperal phlebitis	90		40
Peritonitis	90		40
Pregnancy	90		
Spinal irritation	90		
Variola	80		0
Chlorosis	75		80
Disease of the spinal cord	70		
Starvation in horse	80		
Old age and weakness	200		
Ophthalmia, Dilatation of heart, Plethora, Carditis	all under	60	
Scrofula, Intermittent fevers, Rubeola, Epilepsy	all under	60	

Purpura hæmorrhagica. Fibrine diminished 60 per cent.
Increase of fibrine compatible with health... 60 „
Decrease „ „ „ ... 50 „

This table affords us a very striking arrangement of diseases, and one which necessarily leads us to inquire, Is there anything really to be learned from analyses of the blood? Can the conclusions drawn from them be trusted, and, if so, what are the conclusions to be drawn respecting the increase of fibrine under certain conditions?

Assuming the fact that the analyses are to be trusted, we find the very remarkable circumstance, that the quantity of fibrine in the blood attains its maximum in "leucocythæmia," in some cases of cancer and of phthisis, and that in the latter the amount is signally diminished by cod oil; and we further find that iron has a similar effect in chlorosis.

Without further inquiry, we should hence at once conclude, that excess of fibrine could not be a proof of increased strength. Next to these come acute rheumatism and pneumonia, diseases which have for a long period been considered more sthenic in their type than any other, and requiring the most active and depressing methods of treatment; and after these come again Bright's disease, glanders, cholera, and bronchitis, in which the prostration of strength is extreme.

The first facts show us fibrine in excess, marking debility and a rapid waste of tissue.

The second show us fibrine in excess, in diseases supposed to be marked by an excess of energy.

The last confirm the first.

We are driven then to conclude, either that rheumatism and pneumonia are not such sthenic complaints as they are supposed to be, or that deductions drawn from the excess of fibrine in the blood are valueless.

Assuming that the deductions are not valueless, and that the first conclusion is the most probable, we find in the same category with pneumonia and acute rheumatism, Bright's disease, cholera, glanders, bronchitis, convulsions, scarlatina, scurvy, leucocythæmia, typhus, erysipelas, quinsey, cachexia from lead, pleurisy, chlorosis, and starvation; and in another category, ophthalmia, rubeola, intermittent fevers, scrofula, carditis, purpura.

Looking to these masses, we conclude that there is a greater waste of tissue in the first category than in the second.

We find in all, that the effect of bleeding has been to increase the quantity of fibrine, and all observers are now willing to allow that bleeding has a more powerful effect in debilitating the system than any other treatment.

We turn to Paget's 'Lecture on Surgical Pathology,' and we find, vol. i, p. 399, "All the changes I shall have to describe are characteristic of defect of the normal nutrition in the parts; they are examples either of local death, or of some of the varieties of degeneration, modified and peculiarly accelerated by the circumstances in which they occur. The degenerations are observed most evidently in the process of softening and absorption of inflamed parts." Again; "The *degeneration* which would be progressive in a healthy state, but which would then be unobserved, being constantly repaired, is still progressive in the inflamed state of the part, and is *the more rapid* because of the suspension or impairment of the proper conditions of nutrition." When we consider how exceedingly appropriate these remarks are to the rapid disintegration and softening of the lung in pneumonia, we may well fancy that we can see in this the reason for so large an increase in the fibrine of the blood. The lungs are consuming themselves with great violence, and the ashes are thrown into the circulation.

It is not difficult to draw a comparison between acute rheumatism and phthisis. In both the maximum of fibrine is very high, and the minimum is far above the average of health. In both, sweating is a marked and almost characteristic symptom, and we may add, that in the worst cases of each respectively, the perspiration is the most ex-

cessive. In phthisis, as the patient improves in health, the perspirations abate, and the same is unquestionably true in rheumatism.

But it is in the treatment of these diseases chiefly, that we fancy we can see the proofs that pneumonia and acute rheumatism are not diseases of a sthenic origin and character.

In the first place, pneumonia chiefly attacks those already debilitated by natural or accidental causes.

In the second, there is every reason to believe that pneumonia was at one time vastly more fatal than it is at present, and that the difference in the mortality was due entirely to the venæsection and other excessively depressing remedies that were employed in days gone by.

"A doctrine so new as the one which I have adopted," Dr. Inman proceeds to say, "is doubtless one that will startle many of my readers, and they will naturally be inclined to inquire if I have taken the trouble to read the arguments on the other side. I can assure them I have —and have been no little astonished to find how completely void they are of reason. One author regards fibrine and coagulated lymph as synonymous; another, ignoring the analyses made by Simon, Becquerel, and Rodier, Andral, and Gavarret, puts down the fibrine in certain diseases at a high or low figure, as best suits his argument. Even Williams, in his 'Principles of Medicine,' is singularly inconsequential, and heaps up assertions, quite indifferent to the nature of their proofs. Dr. Carpenter treats the notion that fibrine is an excrementitious product, or something analogous thereto, with such supreme contempt, that though he deigns to notice John Simon's observations, because it is a man of mark that makes them, he does not think it worth while to weigh his own reputation against the argnment he opposes. Any one, indeed, of ordinary grasp of mind, reading the review of Simon's book, and the extracts from it which are cavilled at ('Brit. and For. Med.-Chir. Rev.,' vol. vii, p. 473, and adopted again in 'Manual of Physiology, second edition), would see that the objections, by their very feebleness, were additional proofs of the profoundness of Simon's views.

"But these littlenesses are to be expected as long as persons allow themselves to argue from gratuitous assumptions.

"The first assumption in the history of fibrine was, that inflammation implied excess of power—an increased action in the vessels, &c.; 2dly, that plethora was the most common cause of inflammation; 3d, that the blood, in phlogoses, was richer than healthy blood; 4th, that there was a tendency to the outpouring of lymph, because the blood was so rich in it; 5th, that lymph and fibrine were the same things, and as fibrine was found in reality in larger amounts during pneumonia and other inflammations, the whole of the preceding assumptions were looked upon as facts!

"To these were soon added many others, as for example—1, bleeding is of essential importance in pneumonia and inflammation generally; 2, it does good, because it removes so much fibrine from the system; 3, mercury does good, because it diminishes the fibrine in the blood; and as patients got well after having been bled and salivated, these assumptions passed as facts.

"Next came the assumption that fibrine was metamorphosed albumen, a

step in advance towards organization, as was proved by its greater abundance in arterial than venous blood.

"By and by, however, the chemist, who aims at exactness, blows all or most of these assumptions to the winds. He shows that the arterial blood is not richer than venous, in fibrine; that fibrine and lymph are not identical; that fibrine is proportionally increased by venæsection; that inflammations may exist without a greater amount of fibrine in the blood than is occasionally found in health; that the greatest amount of fibrine exists in the weakly, and those undergoing a rapid disintegration of tissue, as in fasting. A more mature observation shows that plethora scarcely ever produces inflammation, but that poverty of blood does so frequently. With so many a rude shock to some medical assumptions, no wonder that the stability of others has begun to be examined; no wonder that many a thoughtful mind is asking of experience to tell it, whether mercury deserves all the credit it has got.

"Other assumptions connected with fibrine were—1, the bleeding diathesis arises from deficiency of fibrine in the blood; 2, all the diseases in which there is a tendency to bleeding must be marked by deficiency of fibrine; 3, fever is a disease where there is a great diminution, as evidenced by the tendency to disintegration of the tissues in that complaint. A more cautious inquiry has dispelled all these notions. Hæmorrhage is as common where there is a vast increase of fibrine as where it is a little deficient; and in fever there is more frequently an increase than otherwise; while in scarlatina, a disease more septic even than typhus, the amount is at least double."

On the changes which have taken place in the constitution of fevers and inflammations in Edinburgh during the last forty years. By R. Christison, M.D., Professor of Materia Medica in the University of Edinburgh. ('Edinburgh Medical Journal,' January, 1858).

Dr. Christison holds that the abandonment of bloodletting as a remedy in almost all fevers and acute inflammations, is owing, not as Dr. Bennett and others maintain (*v.* 'Abstract,' XXV, p. 253, and XXVI p. 283), to an improved acquaintance with disease, by which the practice of bleeding is shown to be unnecessary, but to a change in the constitution of disease—a change by which this once useful practice has ceased to be necessary. This is no new opinion with Dr. Christison. On the contrary, it is one which he has expressed on various occasions and in various ways since 1835. It is based upon his own actual experience as an hospital physician of nearly forty years' standing. It is an opinion, moreover, which is held by Dr. Alison, who can appeal to a corresponding experience, extending even to an earlier date. Now it behoves us to listen with great deference to anything which may be said by one who is so eminently entitled to speak, and as the subject is one of paramount importance, we shall not scruple to quote at some length from the paper before us.

The question considered is whether a constitutional change has taken place in *fever*—a question which stands on its own basis, and which

is not less important than the question of a constitutional change in inflammation, and the answer is supplied exclusively from the personal observation of Dr. Christison in the fevers of Edinburgh during the last forty years.

In the year 1817 Edinburgh was ravaged by an epidemic of continued fever, and Dr. Chistison considers that to the peculiarities of this particular epidemic may be traced the unreserved adoption of bloodletting as a principal remedy for many years afterwards in most fevers and inflammations.

"The epidemic fever of 1817-1820," he says, "presented two well-defined forms. One was that which it has been for some fifteen years the fashion to call *relapsing fever*, on account of its extreme tendency to return after a perfect intermission of several days. Its proper nosographical name, however, is inflammatory fever — the *causus* of older authors, or *synocha* of Cullen and his contemporaries—by which last convenient name we all knew it when it first appeared, but which writers of the present day seem to have a dread of using, probably through fear of being thought to adopt Cullen's pathology along with its nomenclature.

"This fever, which is described in detail in a paper supplied by me on the subject of continued fever, to Dr. Tweedie's 'Library of Medicine,' in 1840, was characterised by its very abrupt invasion, often rendering the patient prostrate within an hour; by the continuous and urgent suffering from febrile anxiety, restlessness, burning heat, rending headache, and irritability of the organs of sense, throughout the whole period of perfected fever;—by its abrupt departure, often in two hours, with free sweating, between the fourth and seventh days, most generally on the fifth;—by a complete apyretic intermission succeeding so that in a few days the patient may be out of bed, or even walk out of doors, or sometimes actually travel to some distance without difficulty;—by an abrupt relapse, ushered in with severe rigors, taking place on the fourteenth day from the beginning of the primary attack, and not to be averted by any precautionary management;—and finally, by a second abrupt sweating crisis on the third day of relapse, leaving the patient greatly prostrate, and with a slow convalescence to pass through, but without any vestige of fever after the expiry of the few brief hours of critical sweating.

"I must omit here, for brevity's sake, all minor characters, and all varieties, of which there were several of great interest,—confining myself to the prime features recognisable in a great proportion of the whole cases. These features, as now sketched, are so peculiar and so prominent, that one would imagine it impossible not to recognise such a fever. And, nevertheless, when it reappeared, after an absence of fourteen or fifteen years from our city, it was not at first recognised, though my account of it in the 'Library of Medicine' had been published only two years before. It was accordingly christened with a new name, *relapsing fever;* and an author had advanced far in printing a book about it, before he discovered that he was not a new observer in nosology.

"This fever, or *synocha*, as it appeared in the epidemic form in 1817-20, was eminently of the sthenic, phlogistic, or inflammatory type. Essentially it was a primary fever, without local inflammation. The

pulse ranged from 120 to 160; it might be large, or it might be small; but if the latter, it was wiry, if the former, cordy, that is, always hard and incompressible; and no contrast could be greater than the sudden descent of this accelerated, irresistible pulse, to the soft fluent pulse of 72 or less, which marked the influence of the resolving critical sweat. Then, the heat of the body ranged from 102 to 105, at times even to 107; the patient's sense of dry burning heat was intense, so that he would lie, and still suffer from heat, with only a linen sheet over him, and the window open, in such cold weather as, for example, we have now in the month of March; and the feeling of heat, imparted to another person touching the skin, was decidedly great and often pungent. Another remarkable fact was the florid hue of the venous blood, and its extraordinary impetus in escaping from the open vein. The blood, indeed, sometimes appeared as if it spouted from an artery. 'Aliquando sanguinem e venâ ita floridum et per saltum fluentem vidi, ut mihi metum arteriæ subjacentis vulneratæ primo perculerit.' ('Thesis Auctoris,' etc. 1819, p. 29). In conformity with this state of things, the skin presented a vivid glow, not on the countenance merely, but likewise over most of the body; the thirst was excessive, the sense of pulsation in the head and chest distracting; and, as the senses were acute, the suffering was extreme.

"I am able to speak with some confidence to all these facts; for, besides observing them on numberless occasions in others, I experienced them myself no less than three times during fifteen months of this first epidemic. Two other peculiarities may also be mentioned. There was not often much delirium, except in children, who, it is well known, are apt to rave in all febrile diseases. And there was little tendency to local secondary inflammation in those not exposed to cold and other privations at the period of invasion or recently before; but again, a great proneness to such complication in the class of society constantly liable to the predisposing and exciting causes of local disease.

"I have here described a disease which many now present have never seen; because, according to another remarkable law in its constitution, it never occurs, at least I have never seen it, except in the epidemic form. But, from my description, no one ought to have any difficulty in recognising and acknowledging it as a very peculiar form of essential, idiopathic, or primary continued fever, characterised, among other particulars, by a truly sthenic, inflammatory, or excited state of the circulation. We shall see presently what became of it. But in the first place, let me describe the rest of the epidemic of 1817-20.

"Nothing in the shape of fever can well be more unlike this form of it, than what is known to all in the present day by the name of typhus. In the ordinary run of cases of typhus, the invasion is slow and gradual. There is nothing like vigorous reaction, or sthenic fever, at any period of its course; the pulse being easily compressible, the heat little elevated, the skin dingy, seldom florid, the jactitation trivial, the senses benumbed, the mind clouded or disturbed by delirium. Then the fever runs on unabated for at least eleven days, more generally for fourteen or seventeen, or even more. There is seldom any tendency to crisis by sweating; the rule of critical days is very often violated; the fever never ceases abruptly, but, as it approached insidiously, so does it pass

off by little and little. The liability to relapse is very slight. And when death results, which is a frequent event, a state of congestion of almost every important organ of the body precedes death for many days, and occasions delirium, coma, and many other deplorable symptoms, which it would be inconsistent with the necessary brevity of the present sketch to describe. Lastly, this form of fever is not confined to epidemic seasons, but may be met with at all times. Hence it is, possibly, that the name *typhus* is rooted in medical language, and has even passed into common speech; while the name *synocha* is unknown in the latter, and is too little known even to professional men.

"Now, this form of fever was comparatively little seen during the epidemic fever of 1817-20. A true unmistakeable typical typhus, as all physicians have understood it in this country since the days of Cullen, could scarcely be said to form part of that epidemic. I doubt whether there was more of it than its ordinary sporadic proportion, or even so much. This is no *pro re natâ* proposition, got up for the occasion,—now for the first time,—the offspring of controversy. Fortunately, I can satisfy every one of the contrary, by testimony of the time,—by my own testimony in my inaugural dissertation, presented to the medical faculty of this university in March, 1819, and consequently in the very middle of the epidemic. 'Febris continua Edinburgi formam typhodem, raro assumere dicitur: et in hâc peste equidem rarissime aliquem signis typhi a Cullenо notatis laborantem vidi' (p. 9.) I well remember, indeed, the interest excited among the students of our hospital by the admission of a case of characteristic typhus into the wards.

"Instead of a true typhus, the epidemic was principally made up of a different form, which would be classed as typhus in the present day—and, perhaps, correctly—but which, at the period in question, when external characters, or grouping of symptoms, were fully as much considered in nosological arrangements as the pathological essence, or anatomical characters of disease—was called synochus. Synochus, in the Cullenian nosology, is an essential fever, beginning as synocha, or inflammatory fever, and ending as typhus. However much it may be the fashion with anatomical nosologists to underrate Cullen's system of classification, and to throw aside his descriptions and definitions of disease, I must say that I even now do not know a better descriptive definition than his of the fever which constituted the most frequent form of the epidemic of 1817-20. For, at the beginning of the attack, no one could distinguish this variety from the inflammatory or (relapsing) fever already described. There was the same abrupt invasion, the same vehement pulse, the same high temperature, the same intense restlessness. In a word, for six or seven days there was no sign to show that the attack was not to end, like the inflammatory fever, in an abrupt sweating crisis. But, instead of that, the pulse and heat, at the close of the first week, abated somewhat in force; the acute, anxious inquietude passed by degrees into prostrate torpor; the mental faculties became clouded, and either delirium or stupor, or both, stole on imperceptibly; till at length, in ten or eleven days, the features of typhus were clearly unfolded.

"Still, however, traces of the primary sthenic fever remained. Some cases ended by a slow, gentle diaphoresis, beginning on the eleventh,

and going on till the fourteenth day—a termination, by the way, which I have seen about half-a-dozen times in the true typhus, both mild and grave, which has prevailed sporadically during the last three or four years. Other cases seemed to yield slowly about the eleventh or fourteenth day to bloodletting, without any critical sweat or other evacuation. Occasionally, too, a crisis by spontaneous hæmorrhage appeared to justify the treatment by bleeding, and illustrated the never-failing descriptions of ancient authors. It is also worthy of mention, that the termination of fever by hæmorrhage has not been witnessed for many years in Edinburgh, either in epidemic periods or during the non-epidemic intervals. Another very important fact was, that in every mode of progress—in fatal cases equally as in recoveries—the pulse was generally observed to retain very long a considerable measure of that fundamental volume and force, which formed a predominating character of the early stage of the disease, as well as of the whole course of the inflammatory fever or synocha. One consequence of this state of the circulation was, that, in the secondary typhous stage, bloodletting, even practised from a vein, was borne well in general; and another consequence, not less remarkable and undoubted, was, that wine was not sustained with the ease and certainty which might have been expected from the proofs of typhoid prostration actually present. In my thesis wine, as a remedy, is thus adverted to: 'Stadio synochi icterodes progresso, typhoque puro, sed varietati præterea vix ulli, beneficio fuit.'

"It will not seem unnatural, that at this period, and long afterwards, the two most prevalent forms of the epidemic—the one which terminated generally on or before the seventh day by sweating, and the other, which, instead of doing so, passed into a subsequent stage of typhus—were regarded as one and the same disease. Were we wrong? There was a time when, impressed by new phenomena in the progress of our epidemics, I was inclined to conclude, and have actually admitted in my lectures on clinical medicine, that we had been in error; that synocha, or relapsing fever, is a separate disease, *sui generis;* that true typhus is another, and that our synochus, or intermediate form, is only a modification of typhus. But, on later reconsideration, I am much inclined to revert to the original doctrine, so far as to see in synochus an ally of synocha, rather than of typhus, and possibly nothing else than an unresolved synocha. We have an analogue in malignant cholera. As observed for many years in the East Indies, if it did not prove fatal in the stage of diarrhœa, spasm, and collapse, cholera came to speedy resolution, without any remarkable consecutive phenomena. But, after it reached Western Europe, the patient had generally to pass through a secondary stage, much resembling profound typhus, and dependent apparently on suppression of urine. Nevertheless, the two forms are the same disease, however different in their course; and no man has hitherto thought of making two diseases of them. Synocha and synochus, as they occurred in 1817-20, were not more different in their characters and progress. And yet, if they be assumed to be one and the same disease, what is to be thought of the relations of typhus, into which, undoubtedly, a characteristic synochus may be easily traced by the imperceptibly varying shades observed in a long succession of cases, even in one epidemic, but still more in several epidemics—the inflammatory in-

troduction being, so to speak, softened by little and little, in a series of cases, till at length it is suppressed and lost altogether.

"Thus, by contemplating the many varying forms and shades of fever in one or more epidemics, we are irresistibly led to the great question—Are all these forms of continued fever essentially different, or essentially the same, in origin and essence? As to this question, I will only say here, that, instead of becoming clearer as our information about fever extends, it has hitherto seemed to me to be rendered, on the contrary, more dubious than formerly; and that, above all, it is not to be solved in the negative, with the facility and confidence which have been brought to the inquiry by some purely anatomical physicians of the present day.

"But I must not allow myself to be diverted by this theoretical episode from the main action of my subject.

"I think that, if what I have said of the great features of the remarkable epidemic fever of 1817-20 be dispassionately viewed, no one can feel surprise that bleeding became for it a much-favoured remedy. When the epidemic broke out, two other modes of treatment were in vogue—the diaphoretic plan and the cold affusion. Diaphoretics, though utterly useless, were generally given then, as they are given still, for the sake of doing something. We certainly did no good with them in 1817-20. The cold affusion, too, a potent agent, and indicated by the great increase of animal heat, proved equally useless. It gave relief for half an hour, but was of no permanent advantage, though often repeated; and, after myself experiencing the agonising central headache, substituted instantly by it for the prior and more bearable general headache of the fever itself, I felt no desire to inflict such intense suffering upon any fellow-creature. But a fever, with such vivid reaction, demanded some sedative. Bloodletting, the most powerful and certain of all, was resorted to. And such were the good effects apparently obtained with it, that it soon came into universal credit, and was carried to what will very naturally now seem extravagant lengths.

"The following are extracts from my own account, in 1819, of these proceedings: 'Febrin adultum implicantem raro unciis sedecim, frequentius viginti, viginti-quatuor, viginti-octo, trigintave missis expulsum vidi; et aliquando e viro procero, forti, et toroso, tres libras, vel amplius insigni cum beneficio eductæ sunt.'—'Aliquando venam iterum iterumque feriri opus fuit.'—'Aegroti, quos solos tractavi, raro tertiæ venæsectionis indiguerunt; alii autem in compluribus exemplis ter quaterve cum exitu optato uti sunt.' ('Diss. Inaug.' pp. 48, 49.)

"This was vigorous practice; and it was honestly and impartially enforced—sometimes to the terror of older, but less experienced fever physicians. I well remember the repugnance and distress of an elderly medical friend in Ayrshire, when, on my taking a third attack there in the autumn of 1819, and persuading him, much against his will, to sanction bloodletting, I insisted on his waiting till I recovered from faintness on losing fourteen ounces of blood, and compelled him to finish the legitimate allowance of thirty ounces in all. And let it be remembered, that we did by no means slay our patients by such blood-thirstiness. On the contrary, the mortality from the whole forms of fever collectively, in that epidemic, did not exceed 1 in 22 at any period, and was reduced to

1 in 30 as the epidemic spread, and the remedy became more and more familiar. It was at the time universally believed that bleeding had a tendency to ensure the resolution of synocha by critical sweat—to prevent in this way the passage of synocha into the secondary typhus stage—to moderate the secondary typhous phenomena—and even to relieve the evil tendencies to visceral congestion, which characterised the pure typhus occasionally encountered among the other forms of fever. I confess I am still loath to believe, with younger critics who never saw the epidemic of the time, that all these convictions were hallucinations. But, nevertheless, it must in candour be admitted, that the cure by bloodletting was resorted to by many too indiscriminately, and inflicted by others too energetically.

"The next epidemic of fever occurred in 1826-29. The causes of its spread on this occasion were much the same as before. In 1825 immense failures took place in all branches of commerce and trade in the British Islands; and the exhaustion of the country from that cause, with subsequent bad crops, reduced the demand for labour, raising at the same time the price of provisions. Fever seems always to burst into an epidemic in any such conjuncture.

"There is nothing further to be said of that epidemic, than that it presented precisely the same forms of fever, and the same constitution, with the prior epidemic. I had a full share in treating it, having been Ordinary Physician of the Infirmary and Fever Hospital during the whole period. It was during this second epidemic that I recognised more truthfully, the relapsing tendency of the inflammatory fever; and that, finding the relapse could not be prevented either by any precautions or by quina, and observing it always to occur on the fourteenth day, I regarded this event no longer as a true relapse, but rather as an integrant part of the fever. The form of synochus, or, if the term be thought fitter, of typhus with a primary stage of a week's vehement reaction, was again the most prevalent. And all forms were alike treated by general bloodletting.

"At the end of it the form of enteric typhus, or dothinenteritis, first came into notice in Edinburgh, concurrently with an epidemic of dysentery, viz., in 1829. I may mention, however, that this form of fever had occurred so early as 1817, though it was not recognised at that time; for I have lately found, in some old notes, a case of the date of October, 1817, which was clearly one of enteric typhus, and another which occurred in January 1819. This fever had always been rare in Edinburgh; and even in 1829 the cases of it were very few in number.

"In 1831, 1833, a minor epidemic presented itself. I know less of this than of others, because two attacks of fever in the early period, and in 1832-33 my first course of lectures on materia medica, withdrew me from the study of its features. In 1833-34 I began my duties as professor of clinical medicine. And now my attention was first drawn to a change apparently going on in the constitutional phenomena of our continued fever.

"From 1831 onwards, for the long period of two-and-twenty years, our fever never receded altogether from the tendency to put on the epidemic form. During that long interval, the annual number never fell, except in one year, below 700 in round numbers; and on four occasions,

in 1837-39, 1841, 1843-44, and finally in 1847-48, it gathered strength, and became a formidable epidemic—the numbers increasing to twice, thrice, and, on the last occasion, actually to six times the rather high average of the quiescent intervals. In the last of all, consequent on the distresses arising out of the failure of the potato crops, we had 8400 cases of fever treated in our hospital in the course of two years. From the year 1826 till 1854, there has been no want truly of opportunities of becoming familiar with the phases of continued fever.

"In 1834 I became satisfied that a change had taken place in the constitutional character of our fevers. Synocha had disappeared. Synochus —a name which I may be allowed to use, now that my meaning in using it is clear—had also disappeared, or rather, its early stage had become much less clearly marked by the symptoms of vehement reaction, and so it was undistinguishable from a mild typhus. True typical typhus was much more common; and what did not come up to Cullen's mark of fully-formed typhus was what physicians would now universally consider as mild typhus, with more of introductory reaction than we observe now, but much less than in the two epidemics of 1817-20 and 1826-29.

"Accordingly, I doubted, and all the physicians of our hospital also doubted, whether bloodletting was applicable as a remedy to that fever. We could not bring about resolution by a sweating crisis with it. We could not lessen by it the depth of the typhoid prostration. And, worse than all this, our patients ceased to sustain free venesection, a few ounces of blood bringing on faintness, and the constitution refusing to rally afterwards.

"It is very important for me to adduce evidence, that the statement now made is not the result of an afterthought of the present day, but was come to at the time. This proof fortunately can be given from my lectures on materia medica. I cannot supply it so early as 1834, because I cannot fix precisely the date on which the lecture I shall quote on general bloodletting was first delivered, but it was written out, as I shall quote it, certainly in 1836, probably in 1835.

"I could show, indeed, from my lecture on wine in fever, written in November, 1833, that, even at that earlier date, my attention had been pointedly turned to a change going on for some time in the constitution of fevers, and rendering that remedy much more frequently necessary than in earlier epidemics. And it is evident from this circumstance, that bloodletting must also have been noticed to be inappropriate. But, for brevity's sake, I shall confine myself to my direct observations on bloodletting, written two, or perhaps three years, later.

"'Much discussion has arisen among physicians as to the propriety of employing this remedy in *synochus*, some forbidding it entirely, as unsafe, or as tending at the very least to protract the disease; and others maintaining that, when employed at an early stage, it is invariably one of the best means of mitigating the violence of the primary, and thereby lessening the danger of the secondary stage. The truth is, however, that each party is in error, and has been led to form an absolute or too exclusive opinion, from having reasoned on too narrow a basis of observation—from having observed the phenomena only during the prevalence of a single epidemic constitution.

"'I conceive, that in synochus, the employment of bloodletting, as a

general remedy, is sometimes signally useful, and at other times decidedly injurious; and that the main cause of the difference is a difference in the intrinsic constitution of different epidemics.

" 'When the primary stage of synochus is well marked, that is, when the inflammatory state of the circulation runs high; in short, when the fever distinctly commences in the form of *synocha*, bloodletting will often prove a valuable remedy.' I then go on to describe how, in such circumstances, it may be employed to cut the disease short, by promoting a sweating crisis—to mitigate the force of reaction, and so obtain a milder typhus in the secondary stage—and to combat incidental local inflammation. And next, noticing the opinion of some, and especially of Dr. Welsh, a well-known writer on the Edinburgh epidemic of 1817-20, that 'the practice or neglect of general bloodletting is the main cause of the absence or prevalence of a typhoid character in different epidemics,' I proceed thus:

" 'Had Dr. Welsh survived a few years longer, he could not have failed to alter his opinion. Since the time he wrote, the dominant type of our fever has been gradually changing, the typhoid character having by degrees taken place of the inflammatory tendency then prevalent; and this alteration has occurred in defiance of the practice of copious depletion. At present (1835 or 1836) cases of pure synocha are scarcely ever seen; cases of mild typhus are exceedingly common; and in cases of synochus, which are also frequent, the primary stage is imperfectly marked, the reaction seldom rising high, and the stage of depression coming on unusually soon.

" 'In this form of epidemic fever, then, if I were correct in laying down, a short while ago, the indications for bloodletting in synochus, free depletion must be seldom called for. The inflammatory fever seldom runs high enough in the early stage to require active depressing measures; diaphoretic crisis being almost unknown, we can scarcely expect to check the disease in its early stage, by inducing that mode of resolution; and, as for the third object of general bloodletting, the arresting of local inflammation, it would be absurd to resort to so active a measure if the local detraction of blood will answer the same purpose—which is actually the case.

" 'But this is not all. General bloodletting is not merely uncalled for in the synochus which has appeared for some time past: it is also in general positively hurtful. A close observer of nature cannot fail to remark, that, compared with former epidemics, our fever, for some years past, has been accompanied with a marked depression of the nervous system. This affection, which appears the main source of danger in most cases, and which ought therefore to be chiefly borne in mind in the treatment, generally shows itself very early in the progress of the fever, commonly towards the close of the first week, or beginning of the second, and is out of all proportion great, compared with the previous or coexistent reaction. It has invariably appeared to present itself in an aggravated form in those individuals who had been copiously bled at the commencement of the attack; and any attempt to draw blood from the general system after its formation is followed by speedy faintness, sinking of the pulse, and increase of general depression. So much, indeed, have these facts forced themselves on my notice, that, from having been at

one time an uncompromising and somewhat promiscuous venesector in continued fever, I feel now inclined to avoid it on every occasion; and I have seldom been induced, by incidental violence of reaction in the early stage, to depart from this reserve, without subsequently seeing cause to repent having done so.

" 'To conclude, in former epidemics of fever in this city, the prevailing type of the disease was inflammatory reaction; in the later epidemics, the prevalent character has been nervous depression. And, accordingly, if free depletion was the principal remedy in the former instance, the main remedy in the latter has been wine, with other stimulants. As a general practical rule in all epidemics of continued fever, it may be assumed that bloodletting will be safe and useful as a remedy in the different stages of synochus, for the purposes specified above, provided the epidemic constitution of the fever present frequent cases of pure synocha, and a strongly-marked stage of reaction in the early period of synochus.'

" The two epidemics of 1837-39, and 1841, which occurred subsequently to the first date of these observations, amply confirmed the doctrine of a progressive change going on in the constitution of the epidemic fevers of Edinburgh. The only fact, in the history of these two epidemics, sufficiently important to require distinct mention in this summary, is, that synocha, or simple inflammatory fever, which had disappeared with, or soon after, the epidemic of 1826-29, did not recur with the next two epidemic visitations. At least I never saw or heard of it; and for ten or twelve years about that period, younger practitioners used to listen with something like incredulity to my description of a fever so singular in its character and course.

" In the epidemic of 1843-44, a more vehement one than any before it, synocha reappeared. My first encounter with it was one of those professional incidents which are not easily forgotten. In the commencement of the epidemic I had been for some months off duty in turn as clinical professor, when I called to see my colleague, Dr. Bennett, who was convalescing from an attack of it. He had suffered severely from that complication of fever in which there is a [illegible]eric hue of the integuments; but, though still confined in a great measure to bed from debility, he was well otherwise, and enjoying the genuine pleasures of a fever convalescent. When he had detailed to me his case, I told him he had sustained, to all appearance, an attack of my old acquaintance synocha, whose face I had not seen for a good many years; that he was not yet done with it; and that he would have another three-days' attack, commencing with rigor on the fourteenth day. Dr. Bennett, surprised—I will not say incredulous—replied, that the relapse had no time to lose, as there was only three or four hours of the fourteenth day to run. It did, indeed, lose no time; for I must have scarcely reached home from his house, a distance of one mile, before the rigor set in with violence; and he had the old three days of fever again, terminating, as the primary attack had done, with an abrupt crisis by sweating. I do not know whether it may not occur to some to think that the relapse was brought about by the 'influence of suggestion,' concerning the remarkable operations of which my colleague has since discoursed lately with so much ability and eloquence. But hundreds of similar cases

occurred afterwards, for which the blame could not be laid upon any such mesmeric agency. They became so frequent, indeed, as to attract universal attention; and they were thought to constitute a form of fever new to Edinburgh, until reference was made to my prior description.

"This synocha, however, though so prevalent, by no means presented the same strong phlogistic or sthenic character as in the earlier epidemics of 1817-20, and 1826-29. The pulse was neither so frequent nor so strong; the heat was not so pungent; the glow of the integuments was less lively and less general. In short, some influence seemed to have existed in one epidemic which did not exist in the others, and by which the force of the circulation was kept down. So, too, typhus, a very frequent form in 1843-44, showed itself in its most characteristic adynamic, or asthenic shape. And what I have called synochus presented a first stage of reaction, so feebly phlogistic, that the disease was very generally, and perhaps correctly regarded as typhus; and it was only those acquainted with the high phlogistic introductory stage of that form of fever in the earlier epidemics, who might at this time suspect the coexistence of a third form of fever, intermediate between synocha and typhus

"In the epidemic now under consideration, there never was a question raised about the revival of bloodletting as a remedy. And the reason must be too apparent to require mention.

"A very short interval of imperfect repose ushered in the fearful epidemic of 1847-49, which consigned $5\frac{1}{2}$ per cent. of the whole population of Edinburgh and Leith, in little more than two years, to the care of the infirmary physicians, raised the hospital population for some time to 700, and rendered it necessary to treat many of the patients in wooden erections, raised from time to time, and at last even in military tents, borrowed from the garrison for the purpose.

"The cause of fever passing into the epidemic form on this occasion, and the probable cause of the magnitude of the epidemic, was the unprecedented hardships inflicted on the working-classes by the failures of the potato crop in several successive years. To the general influence of privation thus arising may also be probably added a change in the bodily constitution of the community, caused by a change in the kind of food; at least the existence of a morbid constitutional condition was amply proved by the concurrence, unprecedented for a long term of years, of scorbutis, in the city and neighbourhood.

"In the epidemic of 1847-49, typhus was the prevailing form of fever, and typhus of the most adynamic kind that I have hitherto seen epidemically. There could scarcely be said to be any intermediate form betwixt typhus and synocha, the prefatory stage of reaction being so feebly marked. Synocha itself, however, was extremely common, but with the same comparatively inert reaction which was observed in the previous epidemic of 1843-44. Enteric typhus also came in for a share, but, as usual in Edinburgh, a very small one.

"Here, again, there was no question raised about the revival of bloodletting as a remedy. Many cases did very well with little else beyond attention to their comforts; and in the rest, the dominant remedy was wine, with other stimulants.

"With the year 1849, there set in a series of favorable seasons, producing abundant crops, and, indirectly, ample employment for the labouring classes. Under the blessing of Providence, we have been reaping the result in a continued immunity from fever, such as Edinburgh has never experienced since the dawn of my medical life. * * * *

"My own convictions on the subject are so strong, that I regard nothing as more likely, than that in the course of time, some now present will see the day when a reflux in the constitution of fever will present it again in its sthenic dress, and again make the lancet its remedy And in that event, it is not impossible that, while we are now charged with giving up bloodletting, because it was discovered to have never been the proper method of cure, we will hereafter be assailed by some new enthusiast in bloodletting, who, in imitation of Dr. Welsh, and regardless of the fate of his doctrines, will accuse us, with equal justice, of having made our late fevers asthenic and typhus by blindly withholding their fittest remedy."

A Treatise on Rheumatic Gout, or Chronic Rheumatic Arthritis of all the Joints. By ROBERT ADAMS, M.D., A.M., M R.S.A., &c ; 8vo. pp. 362. Illustrated by woodcuts and a 4to atlas of plates. (London: Churchill, 1857.)

This treatise, as stated in the preface, embodies the substance of the Clinical Lectures on this disease, delivered by the author during several years, and comprises also the principal part of many communications made by him from time to time, and already published; hence, therefore, although the work contains views with reference to this disease which have, perhaps, some claim to originality, still it cannot be expected that it will be found to suggest much which can now be considered new, or which had not, either by himself or others, been already laid before the profession. Interspersed throughout the pages are numerous woodcuts; and an atlas of drawings taken from remarkable specimens of this disease in the Museum of the Richmond Hospital, Dublin, is associated with the work.

On the cover of the work the title "Rheumatic Gout" is applied, within, the first title is "Chronic Rheumatic Arthritis, or Rheumatic Gout;" and the designations given to the disease first demand our notice. The author states that when the wrists, hands, and feet are affected the disease is often denominated "rheumatic gout," but when the shoulder, elbow, or knee, singly, or simultaneously, it has been generally named "chronic rheumatism." By Dr. Haygarth, of Bath, the affection was considered to differ both from gout and rheumatism, and called by him "nodosity of the joints." Dr. Haygarth added that by giving the disease a distinct name he trusted it might be considered as a separate genus, and become a more special object of medical inquiry. Cruveilhier calls especial attention to the disease, and proposes to have it named "Usures des Cartilages Articulaires." Dr. Adams agrees with Haygarth and Cruveilhier in thinking it a matter of much importance to give this disease some special designation, so that it may get a distinct consideration from the profession

and the public, and proposed, some time since, the term "Chronic Rheumatic Arthritis," the disease being slow in its progress, and of a sub-inflammatory nature, and the joints large and small are the principal seats of it.

We consider the author's term of "Chronic Rheumatic Arthritis" very preferable to that of rheumatic gout, which latter we protest against, for, as we shall find, it has no connection with true gout, and the structural alterations of the joints are no way similar to the changes which occur in the latter disease, and which are peculiar to, and pathognomonic of it; and again the condition of blood is by no means allied to that which occurs in gout.

The 2d chapter is devoted to the consideration of the causes and symptoms of the disease.

It is sometimes a constitutional, sometimes a local disorder; when constitutional it affects numerous joints, and is symmetrical on the two sides of the body. Sometimes when constitutional it seems to have its origin in true rheumatic fever, or acute rheumatism; sometimes, on the other hand, although the patient may be exposed to the ordinary causes, as from the sudden exposure to cold when the body was much overheated by hard labour, it seems to arise gradually without any preceding acute attack; sometimes, again, when confined to one articulation, it appears to be produced by local causes, as the habitual over exertion or sprain of the joint.

The principal symptoms may be thus enumerated. Some pain, especially at nights, but not so much as might be expected from the amount of anatomical change, rigidity of the joints, and a crackling sensation produced in exercise, accompanied with pain, more especially felt when the patient commences to move about after a period of repose, as after the repose of the night, the muscles are not organically affected, but often the seat of painful spasms, the joints enlarge. The swelling is at first soft and fluctuating, but gradually becomes harder and harder. According to our author, it is found in both sexes and at almost every age; in males the hip-joint, in females the wrists and hands are the parts more frequently affected. With regard to the crackling noise, it is often both felt and heard, not only by the patient, but sometimes by others in remote parts of the room. As to the condition of life in which it is most commonly found there exists some discrepancy of opinion; Dr. Adams regards it as occurring chiefly among the labouring poor; Sir B. Brodie, on the other hand, among the upper classes; a difference of opinion possibly explained by a difference in the classes of patients which more prominently came under each surgeon's notice, perhaps occasionally from different diseases being described.

The enlargement of the joint depends on many causes, such as synovial effusion, the exostotic growths, and the distended synovial bursæ, some of which are offsets from the joint, others distinct therefrom; the bursæ of the olecranon are often affected, but no gouty matter is found in them, neither is there any layer of urate of soda seen in or upon the articular cartilage of those cases which the author considers true chronic rheumatic arthritis. During the whole course

of his numerous researches, Dr. Adams only once met with true bony anchylosis, and suppuration is exceedingly rare.

Chapter III includes the diagnosis and prognosis of the disease. Haygarth, the earliest writer on the subject, states as follows :—"The nodes appear most nearly to resemble gout, both of them are attended with pain and swelling of the joints, but they differ essentially in many distinguishable circumstances. In gout, the skin and other integuments are generally inflamed, with pain, which is very acute, soreness to the touch, redness and swelling of the soft parts, but in no respect like the hardness of bone. The gout attacks the patient in paroxysms of a few days, weeks, or months, and has complete intermissions, at first for years, but afterwards for shorter periods. The gout attacks men much more frequently than women. There is one distressful circumstance which distinguishes this disease; it has no intermission and but slight remissions, for during the remainder of the patient's life, the nodes gradually enlarge, impeding more and more the motion of the limb; the malady spreads to other joints without leaving or producing any alleviation in those which had been previously attacked."

As to prognosis, it is less serious when local than when general, in which latter case gradual progression from bad to worse seems inevitable. The prognosis, however, as far as life is concerned, is not serious provided the patient be in easy circumstances.

In Chapter IV the anatomical characters of the disease are given.

1. Alterations in the fibro-synovial structures of the joints produced by the disease; capsules distended with synovial fluid, thickened, and exhibiting signs of chronic inflammation. The redundant fluid is afterwards absorbed, and the capsular membrane acquires a preternatural density (in the hip joint it has been seen a quarter of an inch thick), sometimes it even contains bone in joints long affected; in the interior many of the structures become altogether removed, as the round ligaments in the hip joint, the tendon of the biceps in shoulder. All the articulations which have been long affected are usually divested of their cartilage of incrustation. In ancient cases the interarticular fibro-cartilages are also absorbed, as in the lower jaw, wrist, and knee-joint. In consequence of the distension produced in the capsular membrane by the increased quantity of fluid in the first stage, the lateral ligaments of the ginglymoid joints become preternaturally elongated, from the effects of which they are slow to recover; hence, at first, the laxity of these parts in the smaller joints gives them at first a greater degree of mobility, rendering partial or complete dislocation more easy than natural; the capsular ligaments of the other joints also retain their elongated state favouring a similar dislocation in them.

Foreign bodies, varying in number, size and consistence, either bony or cartilaginous, connected more or less closely by slender or broad-based ligaments to the other structures of the joints, and sometimes even free, are not of uncommon occurrence; and when a joint has been long and severely affected, "*additamentary bones*" (so called by our author), have been found deepening and enlarging the cavities of reception for the heads and condyles of bones composing the articula-

tions; and lastly, in such joints membranous productions or "vascular excrescences" are often met with.

Alterations in the osseous system.—The cartilaginous incrustations, as before said, are completely removed; and when the disease is of long standing, its place is supplied by an ivory-like enamel, remarkable for its polish and hardness. In the first-class joints, such as the hip and shoulder, the surface of the head of the bone becomes like an ivory ball; in the ginglymoid joints, at the knee, &c., the cartilage is supplied by patches of this same substance (ivory eburnations), marked by grooves hollowed out in the direction of the movements of the joints. The denuded surfaces become partly worn away, and a smooth enamel is formed by the mutual action of the bones on each other; and, around the articular surfaces thus mechanically acted upon, bony vegetations arise. The heads of the bones thus flattened have the appearance as if they had been crushed down, and in the hip and shoulder-joints may lead to error of diagnosis. The sockets of the bones are also altered, in some cases rendered much deeper, in others shallower and otherwise deformed, and the shafts of the bones, especially in the vicinity of diseased joints, become dense and hypertrophied.

In Part II, the special affections of each joint are detailed, and by far the greatest portion of the book is devoted to their consideration. We will give one or two illustrations.

Hip-joint.—The causes of the affection of this joint are of the same nature as in the rest, but perhaps blows and falls are more frequently operative; when it appears, as it often does, as a local complaint, it rarely extends to other articulations; it may, however, follow the disease of the other joints. In addition to the stiffness and crackling, &c., there is shortening of the limb, more marked in appearance than reality, eversion, wasting of the muscles of the thigh, but *not* of the calf; hence the flattening of the nates, more or less spinal curvature in the dorsal region, the convexity being towards the affected side, and the distance between the false ribs and pelvis of that side less than on the other. No pain is produced by firmly pressing the head of the bone against the pelvis.

Anatomical characters.—The head of the femur loses its normal form apparently at the expense of the neck; and the long axis of the neck, instead of passing from below upwards, inwards and forwards, passes backward somewhat, and its right angles to the shaft of the bone, so that the highest part of the head is often below the summit of the great trochanter. The head of the femur, when not eburnated, in the dry state, presents a porous appearance, as if drilled with minute foramina; in the recent specimens these pores are filled up with a very red cellular tissue. In those cases, where the hip-joint was moveable during life, the pores were filled up, but none found to project beyond the level of the articular surface; in those, on the other hand, where there was no motion, there was a fine vascular cellular tissue, projecting from them, and covering the articular surface of the head of the femur and interior of the acetabulum, and beneath this no cartilage of incrustation existed.

Knee-joint.—From the commencement of the disease the knee-joint is observed to have a strong inclination inwards, which is most evident

when both knees are affected; the bones of the leg are rotated outwards, and the foot everted; the patella rests on the outer condyle of the femur, sometimes entirely outside this condyle; when the swelling is at its maximum, in addition to other effects, there is a projection in the popliteal space leaning towards the inner head of the gastrocnemius, disappearing when the knee is flexed, and more tense when the joint is extended, and produced by the distension of a normal bursa connected with the cavity of the joint.

In later stages, the fluid and swelling disappear, the patella takes its proper position, and an articular crepitus is felt, produced by the grating of the rough surfaces upon each other.

Diagnosis.—In white swelling there is more wasting of the limb, the swelling is not well defined and elastic; in chronic rheumatic arthritis the swelling is soft and fluctuating; the cellular membrane around the synovial sac and behind the ligament of the patella is swollen and infiltrated in white swelling, but not so in chronic rheumatic arthritis, when the tendon stands out quite distinct.

The morbid appearances are as follows:—Enlarged bursa, sometimes multilocular; many pendulous excrescences in the interior, like the appendicæ epiploicæ of the large intestine, and small processes like melon seeds, foreign bodies, or loose cartilages. In the first stage the articulating fibro-cartilages are of a dull-yellow colour, softened so as to be easily penetrated by a probe, thinned and separated into fibres in fact in an early state of disintegration. The semilunar cartilages are generally removed altogether as the ultimate result of this disease, but rarely found hypertrophied. The cartilage of incrustation becomes removed; the patella is seen broader than natural; the internal articular surface of the tibia is usually narrower than the external, which last is found to present a large circular outline, partially surrounded by a rim of bone, and elsewhere having a smooth and eburnated surface; bony vegetations are seen on the posterior and lateral margins of the condyles of the femur; the most common luxation in this variety is the sub-luxation of the femur inwards.

We have now given a very slight sketch of the manner in which the affection of two of the chief articulations in the body are treated, but in the work itself will be found every information which can be desired concerning the diagnosis, morbid appearances, &c, of the affection, not only when it attacks the hip and knee, but as seen when all the important joints liable to become altered by this disease are implicated, as the shoulder, elbow, wrist, and the joints of the carpus, metacarpus, and phalanges; also of the ankle and the joints of the tarsus, metatarsus, and toes; the temporo-maxillary, sterno-clavicular, and anomio-clavicular articulations; and, lastly, the disease as it affects the vertebral column.

The consideration of the treatment of the disease, though contained in the first part of the book, we have left for consideration till the last; only twelve pages are given to the subject, and these contain more the opinions of others than the results of the author's own experience.

Dr. Adams first reviews the question as to whether the disease is of an inflammatory nature or not, as this question should be answered

before the treatment can be advantageously discussed. He first quotes the late Dr. Colles, where he states that, "He did not think that genuine inflammation had anything to do with its origin, for nothing like pus or lymph had ever been found in the affected joints; if it be inflammatory, it has not the characters or consequences of true inflammatory action."

Dr. Todd's opinion is next given, who thinks the "affection of the joints may be most correctly described as an abnormal nutrition, occasioned by the presence of a peculiar matter in the nutrient fluid, affording doubtless certain points of resemblance to chronic inflammation, yet differing from it in a very marked manner."

Other quotations are given from authors holding opposite opinions, especially Cruveilhier and Sir B. Brodie, with whom the author evidently coincides, considering that the ordinary causes of the disease, also the pain, swelling, heat, and redness when the affection is external, and the redness of the synovial membrane and fimbriæ, and the inordinate effusion of synovial fluid, as well as the hyperæmic condition of the bones themselves, all point to inflammatory action.

The contents of the three or four pages in which Dr. Adams really discusses the treatment of the disease, may be thus summed up. During the earlier periods, the application of leeches and cupping-glasses is attended with advantage.

In a few instances, the combination of guaiacum and sulphur, &c., called the Chelsea pensioner's electuary, has proved beneficial after its long-continued use; so also the ammoniated tincture of guaiacum. Anodynes should be employed in the form found to produce least uneasiness to the patient. As to the question whether those afflicted with this disease should yield to their disorder, and condemn themselves, as it were, to immobility for life, or whether they should contend against it, and persevere in walking, even although it proved painful and fatiguing, Dr. Adams replies as follows: "That in the commencement of the disease, rest, cupping, the frequent use of leeches, confinement to a warm atmosphere, warm baths, and mercurials combined with opium, seem to be the most rational means to resort to, with the expectation of arresting the progress of the affection in its early stages; but, on the contrary, if chronic rheumatic arthritis has gone on to the destruction of the articular surfaces, and the movement of the joint is followed rather by a stiffness of the limb than actual pain—in this case, some walking exercise daily may not only be permitted, but recommended to the patient: his general health will be thereby improved, and the articular surfaces will be found to move more freely on each other, owing most probably to the eburnation of them which we know to be induced by motion. If, however, on the one hand, it be true, that in the early stages of the disease exercise is likely to aggravate the symptoms; still, upon the other, it is important to have present to our minds the evils which result from the system of the articulations being kept for a great length of time in a state of quietude; for my experience accords with that of Teissier and Bonnet, that prolonged and absolute repose of the joints, particularly in old persons, is calculated to determine serious

alterations in the articular structures, such as effusion of a sero-sanguineous fluid into the synovial sacs, the formation of false membranes, erosion and thinning of the cartilages, &c." With regard to the efficacy of different mineral waters in this affection, Dr. Adams thinks at present the treatment of the disease has not been sufficiently advanced to enable us to determine as to the positive and relative merits of the different watering-places; but he thinks, and in this we most fully coincide, that "when the affection has become more generally understood and distinguished from gout and rheumatism properly so called, and the results of experience faithfully recorded, then, and not till then, will the physician be enabled to speak more positively as to the general medical treatment both of the local and constitutional forms of chronic rheumatic arthritis."

In concluding our notice of Dr. Adams' work, we can heartily recommend it to the perusal of our readers, feeling confident that it is one, which represents the results of much labour and perseverance in the study of a most obscure affection; and if we may feel at first somewhat disappointed at finding so little space devoted to the pathology of the disease, and its treatment, yet on further consideration we shall perceive that this paucity is in no way the fault of our author, but depends rather on the present imperfect state of knowledge on the subject. The work throughout is copiously illustrated by numerous woodcuts, and the atlas contains many valuable illustrations of the changes induced by the disease.

On Purpura and its connection with splenic disease. By Dr. Habershon, Assistant-Physician to Guy's Hospital. ('Guy's Hospital Reports,' Third Series, vol. iii, 1857.)

Dr. Habershon divides purpura into—

1, 2. The *simple and hæmorrhagic forms*, arising from disease of the spleen and liver.

3. *The purpura erythematica and urticans*, the result of acute hyperæmic conditions of the skin, and more allied to the exanthems.

4. The *congestive variety*, as found in disease of the heart, from extreme congestion of the capillaries. In this variety the blood, in all probability, is modified by the engorged viscera, and, in advanced life, the capillaries themselves may be degenerated.

5. The *patechial form* in typhus and typhoid fever.

The paper is illustrated by fourteen cases, and all the ordinary points in connection with the disorder are carefully considered. Attention was drawn to the spleen by the two following cases:

Case 4.—William G—, æt. 34, a rope-maker, residing in the Old Kent-road, admitted under my care June 1st, 1854. He stated that he had never been ill, and that he felt well till three days before admission, when purpurous spots made their appearance on his ankles, but afterwards became general. They were not preceded by any particular symptoms. He was a married man, and his habits of life had been regular and temperate; his diet had been a mixed one, beef and mutton, and he had not restricted himself in the use of vegetables. The gums became very sore and tender, and began to

bleed, but epistaxis did not come on for several days. The bowels were regularly acted upon. On admission there were numerous spots of purpura on the body; the motions were dark and extremely fetid; the urine contained neither blood nor albumen. The gums were slightly spongy and bleeding. The pulse small and feeble. The pupils rather dilated. Sulphate of magnesia, dilute sulphuric acid, and infusion of roses, were given every four hours; meat diet, and greens. June 3d, the epistaxis had ceased, but the gums continued to bleed. On examining the blood microscopically, there was no increase of the number of white corpuscles; the red were crenate probably from saliva. 4th, Decoction of bark with chlorate of potash were given. 5th, The epistaxis returned. 6th, There was pain in the left hypochondrium; no relief to other symptoms. Ordered: Tincture of iron, ℥xv, with lemon-juice, ℥j, every four hours. 8th, He was much worse, the hæmorrhage from the nose and mouth had increased. He was insensible and comatose. The pulse was slow, small, and feeble. He had passed a considerable quantity of blood from the rectum and from the bladder. The pupil of the left eye was much dilated, the right much contracted, the eyelid only partially closed. The right side was hemiplegic, with loss of motion and sensation, and the temperature was lower than the other; tickling the left foot produced excito-motory movement, not so the right. The paralysis had come on the same morning at ten, and was preceded by severe pain in the head. The coma continued till death, on the afternoon of the same day, and death appeared to be immediately caused by the passage of the blood into the larynx, and the obstruction about the epiglottis.

Inspection was made twenty-one hours after death. On the right conjunctiva there was ecchymosis, and the left side of the mouth was fallen. The whole of the body was thickly studded with spots of purpura, there was blood on the gums and at the nostrils. *Head:* There were spots of ecchymosis on the scalp, and the dura mater was thickly studded with points of effused blood. The arachnoid was dry, and the convolutions much compressed. Blood was effused into the meshes of the pia mater; and on the left side corresponded to the temporal bone. The fluid in the ventricles was slightly tinged with blood, more so on the left than on the right side. The left posterior cornu contained blood, and between this portion of the ventricle and the external surface was an irregular clot of blood, and numerous points of ecchymosis; the surrounding brain-substance was soft and diffluent. *Chest:* The mucous membrane of the œsophagus, as high as the clavicle, was infiltrated with blood. The trachea presented points of ecchymosis, so also the bronchi. The lungs did not collapse, they were congested, and contained spots resembling pulmonary apoplexy. The pleura had in it a small quantity of bloody serum, and the costal pleura was spotted with bloody points; there was a small quantity of bloody serum in the pericardium; the heart had numerous points of ecchymosis on the anterior surface of the right and the posterior surface of the left ventricle. The heart was flaccid, but its muscular fibre and valves were healthy; its cavities contained fluid blood; its weight nine ounces. *Abdomen:* In the rectus abdominis there was some blood effused. The peritoneum was healthy; but portions of both small and large intestine were distended with dark-coloured bloody fluid. The mucous membrane of the stomach, duodenum, jejunum, and ileum, were throughout ecchymosed. The cæcum was in a similar condition; and blood was poured out into the substance of the mesentery. The liver was pale but healthy in form and structure, three pounds three ounces in weight. The *spleen* was pale, soft, of a dull red colour, and contained very numerous light-coloured masses, about the size of peas, through the whole of its sub-

stance. These pea-shaped masses, on microscopical examination, were found to be connected with the splenic capillaries, a larger capillary vessel being observed to be connected with one side of the mass; and on the other were several smaller vessels, but it could not be ascertained whether these ramified over or passed through the structure. The rounded mass consisted of granules and cells; several of them were irregularly aggregated together so as to constitute the pea-shaped mass before mentioned; splenic cells were observed of various sizes generally about the size of white corpuscles of the blood, some contained a distinct nucleus, others granular matter. The supra-renal capsules were large and pale; the lumbar and other glands healthy, but the areolar tissue about the lumbar nerves was spotted with blood. The kidneys were enlarged, being eleven ounces in weight; the secreting portion was healthy, but a considerable quantity of blood was effused into the mucous membrane of the calyces and the pelvis of the kidney. The bladder contained bloody urine, and its mucous membrane was ecchymosed.

Case 5.—Joseph O—, æt. 23, was admitted under my care into Guy's, June 28th, 1855, and died on the 30th. He was pale and anæmiated, a man of dissolute habits, who had employed himself as a news-agent, and had resided in Kent Street, Borough. For three months he had had epistaxis, and for about one week before admission he had had a boil on the sacrum, from which a discharge of thin serum took place in considerable quantity. On the day of admission he had discharge of blood from the nose, and from the margins of the gums; the pulse was sharp and jerking, the voice hoarse, the respiration accompanied with a loud stridulous noise; at the base of the right lung there were mucous râles; the conjunctiva was watery, and the urine albuminous. Steel and quinine were administered. On the 30th, the brain became oppressed, and the patient gradually became comatose; a blister was applied to the neck, and a turpentine enema administered. In a few hours death took place.

Inspection.—The body was pale, but there was no œdema. *Brain:* The subarachnoid fluid was increased; at the lower surface of the right lobe of the cerebellum there was a patch of ecchymosis; and the section showed that minute points of blood were extravasated throughout the convolutions in the course of the pia mater, covering a space about an inch in diameter, there were also some points of ecchymosis in the white substance. In the mouth were clots of blood. The larynx contained bloody mucus, but was not œdematous. There was a small quantity of bloody serum in each pleura. The bronchi were full of tenacious mucus. The lungs were very œdematous, slightly compressed, and readily lacerable. *Heart:* In the right cavities, was firm decolorized clot, in the left small loose clots; there was considerable fatty degeneration of the muscular fibre of the heart, as shown in the wavy mottling of the inner aspect, and on microscopical examination; the left ventricle was dilated and hypertrophied, the weight of the heart fifteen ounces. The stomach and intestines were healthy. The liver was healthy; the gall-bladder full; the *spleen* four and a-half ounces in weight, but the Malpighian bodies were large, pale, and appeared to form a considerable portion of the gland, &c. The kidneys were pale, granular, extremely degenerated; the tubes wasted and full of granules.

Commenting upon these cases, Dr. Habershon says—

"It is to the spleen that attention was drawn in both the cases here recorded, as the only structure presenting evidence of disease which could not be looked upon as the effect rather than the cause. Dr. Copland

describes the spleen as sometimes enlarged and softened, but here the appearance was remarkable; the enlarged gland was of a dull red colour, and studded throughout with pale yellow spots, from one to three lines in diameter; they were connected with the capillary circulation, and consisted of cells, nuclei, and granules. It is doubtless correct to consider them Malpighian corpuscles; and, as far as these observations point, they tend to show that this diseased condition of the spleen is a cause of purpura hæmorrhagica. The researches of Mr. Gray on the 'Structure of the Spleen,' and those of Dr. Hughes Bennett in the 'Connection of the Spleen with Leucocythemia,' also confirm the connection of this part of the gland-structures with the formative changes of the blood. In the case under my own care the white corpuscles of the blood were not in excess, perhaps the reverse; the disease observed in the spleen may have been the cause of imperfect elaboration of the fibrinous element of the blood. In several fatal cases recorded by Plumbe, the spleen is stated to have been healthy, but they were associated with other fatal diseases, as smallpox, tubercular disease, chronic pneumonia, and diphtheritic inflammation of the mouth. In a case of fatal apoplexy in a child, recently under Dr. Gull's care with disease of the aortic valves, aneurism, &c., the spleen presented a similar appearance; it is doubtful whether this state of the spleen had any connection with the fatal effusion of blood, or whether it was merely a condition of functional activity.

"The occurrence of purpura with ague, and the tendency to hæmorrhage in that disease, strengthen the idea of a splenic origin of the complaint. So also its occasional presence with disease of the kidney does not militate against this idea, for in a case (No. v) under my care, of advanced degeneration of the kidney, in which hæmorrhage took place from the gums, &c., the spleen was found in a similar condition. Some forms of purpura, however, should rather be considered as simply of a congestive character; thus, in disease of the heart, whilst the liver and spleen are both engorged, and the healthy function interfered with, we find mechanical obstruction leading to great venous engorgement; the minute capillaries become over-distended and at last ruptured, so that spots of purpura, and even blebs filled with serum and blood, are occasionally the result. Small spots of purpura are frequently associated with cirrhosis; and it is doubtful whether this is not the result of the hepatic disease alone, or whether of associate splenic disturbance; probably the former. In cirrhosis, epistaxis is a not unfrequent symptom; and in this disease, as in simple jaundice, it is very unwise to apply leeches or cupping-glasses without extreme caution, for the difficulty of stopping the bleeding is notorious, and has sometimes nearly led to a fatal termination."

Cases of idiopathic Fatty Degeneration, with remarks on Arcus Senilis. By Dr. Samuel Wilks, Assistant-Physician to Guy's Hospital. ('Guy's Hospital Reports,' Third Series, vol. iii, 1857.)

The cases of idiopathic fatty degeneration to which reference is here made, are cases which have not been preceded by any manifest primary disorder or by intemperance, and they are not to be referred to

the head of senile fatty degeneration. Their only appreciable and probable causes were hæmorrhage, diarrhœa, or miasmata; and the simple question is whether these or similar influences may have produced a debility of the system, of which this general change of all the tissues is the result. Dr. Wilks relates nine cases as examples of this state of fatal anæmia and fatty degeneration. In these cases the subjects are comparatively young, the heart is the organ in which the diseased change is most marked, and the body generally is neither fat nor wasted. The first three of these cases will serve as examples of the rest.

Case.—Mary B—, æt. 31, was admitted under Dr. Hughes, in March, 1855. She had been living as servant at Rotherhithe, and since her marriage, about a year before, had had much domestic trouble. During the whole of this latter period her health had been failing, and, gaining no relief, she came to the hospital. She was then in an extreme state of anæmia, so that a loss of blood at once suggested itself as the cause; but she denied having had any hæmorrhage, diarrhœa, or any other symptoms excepting those dependent upon her gradual increasing debility. The catamenia were also regular. Her pallor was so great that it at once arrested the attention of every visitor to the ward. There was no increase of white globules in the blood. She grew feebler and feebler until her death, a fortnight after admission. During this time she had frequent vomiting and diarrhœa. The pulse was quick, and an anæmic cardiac murmur existed. It was afterwards learned that her mind at one time had been affected.

The post-mortem examination showed the body spare, but not wasted. The brain was healthy, but having a few small spots of ecchymosis in parts, and the base of the skull was very thin in parts. The heart presented an extreme degree of fatty degeneration. The mitral columns, especially, had about half of their substance occupied by the usual transverse lines of fatty matter. There was no coagulum in the heart or vessels, only a little watery blood escaping from them when cut. They presented no excess of white corpuscles. There was a considerable layer of fat in integument of abdomen, and also in mesentery, omentum, &c. The liver was very fatty, although not in an extreme degree, for, on microscopic examination, it was seen that the circumference only of the lobules had undergone this change, and not the whole tissue. Kidneys appeared healthy to the eye, but tubules found to contain much fat. Spleen healthy and moderate size. No trace of arcus senilis.

Case 2.—Martha D—, æt. 28, was admitted a patient of Dr. Oldham, on November 13th, 1856. She lived in Lambeth, was a woman who had always had delicate health, and had suffered much domestic trouble. She had also had one or two miscarriages, with much hæmorrhage. A few days before admission, being about three months pregnant, she was seized with flooding; this continuing uncontrollable, she came to the hospital; abortion occurred, and the hæmorrhage gradually ceased. She was seen to be a well-developed woman, though now rather spare, and remarkably pale and anæmic. Nourishment of all kinds was given her, but she daily got lower, without any marked symptoms of derangement of any particular organs, and at last died, the legs having lately become slightly œdematous.

Upon post-mortem examination, December 9th, the body was seen to be tolerably robust, but very pale, and the ankles œdematous. The internal organs were all remarkably pallid and bloodless. Neither the heart nor the vessels contained any coagulum, and scarcely any blood. The lungs were

white, and exuded a little serum, but were otherwise healthy. The heart contained the ordinary amount of fat externally, but the muscular tissue had undergone an extreme fatty degeneration; the mitral columns, as usual, showing the feathery markings in the greatest degree. The right ventricle was but slightly affected, and no white lines or dots could be seen by the naked eye. The valves were healthy. The liver was white and very fatty. The spleen was very large, weighing one pound; but healthy. Kidneys very pale; appeared otherwise healthy to the naked eye. The microscope showed, however, the secreting cells to be filled with fatty molecules, and in many tubes little else could be discerned than similar granules. The uterus had not yet recovered its normal size, and its internal surface was covered by a dark-coloured, sloughy, shaggy membrane. There was no trace of arcus senilis. The semilunar ganglion was healthy.

Case 3.—William C—, æt. 16, was admitted under Dr. Addison's care, in January, 1856. His only symptoms were those resulting from extreme debility; he being very pale, anæmic, and resembling, in fact, a chlorotic girl. He had, however, a slightly yellow tinge, and he was not thin, though spare. He was an errand-boy in the city, and stated that he had not been well for three years, and had often suffered from bleeding at the nose, sometimes to a great extent, and lately had had diarrhœa. He had resided nowhere but in the city and knew nothing of ague. Dr. Addison carefully and repeatedly examined him, but could find no local disease. While in the hospital he had, on two or three occasions, violent epistaxis; he often had sickness, and sometimes diarrhœa. He was so weak that he was obliged to keep his bed; but in April he began rapidly to improve, and left the hospital. He went to Berkhampstead, and was for a time better, but soon the diarrhœa and epistaxis returned, and he came back to the hospital in August. He was then as bad as ever, presenting a remarkably pallid aspect, as seen in anæmia, combined with a yellowish aspect which suggested a miasmatic influence as its cause. His skin was soft, and he was not wasted as in phthisis. Again, physical examination failed to detect any disease in the chest or abdomen. He kept his bed and daily sank, at times having diarrhœa and sickness, but no cough, and no more epistaxis. The legs at last became slightly œdematous.

Upon post-mortem examination, the body was seen to be pale, as during life; wasted, but not to a great degree; and skin smooth and supple. There was no appearance of puberty, and it would seem that the boy was two or three years younger than he stated himself to be. Lungs healthy; no tubercles. Heart in the most extreme degree of fatty degeneration; the whole of the left ventricle was covered by the usual white zigzag lines, not the smallest part being found unoccupied by this fatty change; the right ventricle was also similarly affected, though in a less degree; the auricles were healthy. The heart was empty, excepting the right auricle, which contained a small quantity of pale fluid blood. This showed no excess of white corpuscles. The large intestines contained numerous cicatrices of ulcers, or ulcers nearly healed, and a little recent diphtheritic inflammatory exudation in parts. Liver pale and fatty, but not to an extreme degree. Kidneys appeared healthy to the naked eye, but microscope showed much fat, in the form of granules, in the tubes and secreting cells. The lymphatic glands were healthy. There was no appearance of arcus senilis.

The total absence of arcus senilis in these cases leads Dr. Wilks to make some general observations on the connection between this phenomenon and fatty heart. The abstract of several other cases of fatty

heart are also given, in which arcus senilis was either absent or very slightly marked. Abstracts of a score cases of arcus senilis are also given, in which there was no fatty degeneration of the heart. Dr. Wilks is of opinion, however, that a confusion in the expression *fatty heart* may lead to differences of opinion, that two very different pathological conditions have been included under one name, and that the arcus may be connected with one of them, and not with the other; one being a change concomitant with age or with those circumstances which bring about those alterations in the body known as senile, while the other is an altogether primary or idiopathic affection. The difference, as made by Dr. Quain, is between a growth of the natural fat of the heart destroying the adjacent muscle, and an interstitial change in the muscle of those parts of the heart in which no fat naturally exists. The one has reference to the right, the other to the left side of the heart. According to this view the arcus senelis accompanies the gradual increase of fat on the right side of the heart and its encroachments upon the wall and the right ventricle beneath, while it has no connection with those idiopathic changes in the muscular fibre occurring in earlier life, and dependent upon causes altogether apart from advanced age.

On abscess of the Brain. By Dr. Gull, Assistant-Physician to Guy's Hospital, &c. ('Guy's Hospital Reports,' Third Series, vol. iii. 1857.)

This paper is a very important contribution to the pathology of the brain. It contains no less than sixteen well-told cases of abscess of the brain, and the story which these are made to tell with respect to the history of the diseased change and its diagnosis is clear, telling, and not a little instructive. Dr. Gull, we may remark, discards the idea of idiopathic cerebral abscess. This form of abscess, he thinks, is no more than secondary abscess, whose origin is unaccounted for. When the primary abscess is at a distance, the blood appears to be the only medium through which the morbid influence can be conveyed, but the steps of the process are not clear. The brain, moreover, is regarded as having a tendency to suppuration, which gives it a pathological rank with glandular organs—an opinion, as is remarked, of no small significance therapeutically, and especially as to the use of mercury, since it is admitted that the diseases of tissues, having a suppurative tendency, do not bear the full action of this remedy.

The comments respecting the symptoms of this obscure affection are very valuable.

"The attendant headache differs from the headache of tumour in being less paroxysmal, and of shorter duration, before complications occur with it. The difference of this symptom in the two diseases, tumour and abscess, is to be viewed in relation to the different seats of the two lesions, and to their secondary influence on the brain-tissues. A large proportion of tumours arise in the bones and membranes. Abscess, on the contrary, principally affects the medullary substance of the brain. This is shown by a comparison of the following tables; that

of the seat of tumours is from Lebert;* the other includes cases of abscess from Abercrombie and Lebert; and those subjoined by myself, excluding from the list the cases of abscess depending upon disease in the ear or in the nose, or on other local causes which might determine its site.

"*Origin of Tumours affecting the Brain and its Membranes.*
(Lebert.)

A. SINGLE TUMOURS—		
1. Beginning in the bones		3
2. Beginning in the membranes—		
Convex surface	13	40
Base	22	
Falx cerebri	3	
Tentorium cerebelli	2	
3. Cerebral substance—		
Convex surface of the hemispheres	17	36
Deep parts of the hemispheres	4	
Protuberance and medulla oblongata	8	
Cerebellum	4	
Pituitary gland	3	
B. MANY TUMOURS—		
Bones only	2	15
Membranes only	2	
Cerebral substance only	6	
Bones and membranes	2	
Membranes and cerebral substance	3	
		94

"*Seat of Cerebral Abscess not depending upon Disease of the Ear or other parts adjacent to the Brain.*

In medullary substance of the hemispheres	15
In corpus striatum	2
In optic thalamus and posterior lobe	1
In medulla oblongata with scrofulous deposit	1
In cerebellum	1
	20

"It will be thus seen that in ninety-one cases of tumour (excluding the three cases of tumour of the pituitary gland), the bones or membranes were in fifty-two implicated from the outset of the disease, and that in ten at most was the tumour limited to the deeper parts of the hemispheres. Abscess, on the contrary, is very rare between the membranes, and then only when it arises from local disease of the bone, whilst in fifteen out of twenty cases it was seated in the substance of the hemispheres. It is obvious why, in such an estimate as this, the cases of abscess from diseases of the ear which are so common should

* 'Ueber Krebs und die mit Krebs verwechselten Geschwülste, im Gehirn und seinen Hüllen.' 'Archiv für Pathologische Anatomie,' &c., Band iii, 475.

be excluded; for, although in some cases, as remarked below, the abscess of the brain which follows is less from contiguity than from secondary processes, which operate at a distance, still it is difficult in these cases to exclude localizing influences. It is necessary thus to explain, or it might be a matter of surprise that the above table was so limited in its numbers.

"The chronic and neuralgic character of the headache in tumour may be in part due to the inequality of its growth as well as to its seat. Abscess would produce a gradual and uniform pressure, which tumour would not.

"When a patient is debilitated, the symptoms of suppuration of the brain may be as it were stifled in the general oppression of the nervous system, and the only notice of cerebral lesion, may be paralysis often accidentally discovered, or the occurrence of a gradually deepening coma.

"The cases of suppuration in the brain which in their general aspect simulate continued fever, present, on a nearer scrutiny, many distinctive differences, such as occasional vomiting; constipation; contracted abdomen; vertigo; headache, more continued and severe than in fever; a slow, full, and sometimes intermittent pulse; impatience of disturbance, &c.

"For the diagnosis of cerebral abscess it is obvious that we cannot hope to find any pathognomonic symptom. Whether the brain-tissue suffer from tumour or abscess, or be otherwise compressed and disorganized, we may in turn, and in different cases, expect to have headache, convulsion, drowsiness, paralysis, and coma. Such symptoms considered individually, or as one may say statistically, avail but little in determining the conditions which give rise to them, no more indeed than an enumeration of the letters and words of an inscription, towards its decipherment. It is their order and duration which gives them their characteristic importance.

"The headache of abscess is different both in character and duration from that symptomatic of tumour. It is rarely paroxysmal and neuralgic as it is in tumour, but more general and uniform in its expression, as well as more sudden in its rise and acute in its progress. Tumours, as we have seen, frequently affect the membranes, and often have a long chronic course; at the onset the pain is also more limited, or takes the course of particular lines of nervous distribution.

"Our knowledge of the seat and character of such growths no doubt helps us to appreciate better these degrees of difference, which, like different accents on a word, give a variety of meanings to the same symptom.

"General convulsion with insensibility is in itself of but little value in the diagnosis of any brain-disease. In abscess it probably occurs only at two stages, at the onset of acute changes in the nervous tissue, especially if such changes begin in the vicinity of the membranes; and at a later period, if the abscess bursts inwards into the lateral ventricle, or extends outwards to the surface. Amongst the subjoined cases is one where the abscess formed between the membranes under the posterior lobe of the right hemisphere. There convulsions occurred early.

"Limited convulsion without insensibility has far greater value, not

as being absolutely distinctive, since the same often occurs with tumour, but as being to a great extent indicative of local disease; the character of which is to be determined by concomitant conditions and by the other symptoms. Case XIII is such an instance, the clonic convulsion of the right arm without any affection of the consciousness, viewed in relation to the chronic suppuration in the chest, was an indication upon which the diagnosis was made of the presence of abscess in the brain. Abercrombie has described the remarkable course of these cases, the local clonic spasm without insensibility; the gradual supervention of epileptiform convulsion; the paralysis which follows indicating extension of irritation and pressure, more rapid in their course in abscess than in tumour.

"Though convulsion may be the first symptom of both tumour and abscess, there is generally this difference in the course of the two diseases; after convulsion with abscess, the recovery is more or less imperfect, and the patient remains drowsy and oppressed; whilst with tumour, on the contrary, there may be epileptiform convulsions for a considerable time, the patient in the intervals of the seizures recovering almost, if not quite, his usual health.

"The pathological order of the symptoms in abscess, as deduced from observation, is headache; local or general convulsion; drowsiness; paralysis; coma. As might have been anticipated, there is no such constancy in the presence or intensity of these phenomena as to make them unequivocal in their indication; and hence, at the bed-side, it is often only by collateral circumstances, and by the known associations of the malady, that we are able to complete the diagnosis.

"If it be true, as I believe it is, that with the exception of suppuration produced by scrofulous deposit, idiopathic abscess of the brain does not occur, and that with the exception of that which follows direct injury, it is a secondary result of the suppurative process in some distant part, or of chronic disease about the head, then it is obvious that a scrunity of every organ is the first step in the diagnosis, or that at least without which the diagnosis cannot be completed. It may often be difficult to trace the suppurative tendency to its source."

Then, after a table of the principal symptoms and causes of the cases recorded in the paper, Dr. Gull proceeds:

"The general symptoms attendant upon the formation and presence of abscess in the brain occur equally in hydrocephalus. In both diseases, acute changes may be going on within the cranium, though the head and extremities remain cool. The altered respiratory rhythm; the slow, occasionally intermittent, pulse; sluggish pupils; vomiting and constipation, are evidence only of an oppressed medulla oblongata, which may arise from many causes.

"Rigors are not amongst the constant symptoms. They appear to be more frequent in inflammation of the lateral sinus, or when pus collects between the dura mater and bone. The nervous tissue yields readily, and hence, probably, the tension which excites rigor is not commonly produced by the formation of pus in its substance."

And, again:

"There are no sure criteria of the seat of the suppuration even whilst there is the strongest probability of its existence. The following cases,

and the recorded experience of others, show that there may be pain in the forehead, with abscess in the cerebellum, pain in one side of the head, whilst the abscess is in the other hemisphere, and even no symptom but drowsiness, though suppuration is extensive. The not unfrequent occurrence of more than one abscess is also a further complication of the diagnosis. Even where abscess follows injury to the scalp, it is not so entirely under the external wound as to make us sure of evacuating the pus by an incision. Clinical experience shows, however, that the brain-tissue will bear more mechanical interference than might have been supposed, and encourages the hope that as knowledge increases even here, our power may increase with it. Detmold's case, notorious from the doubts as to its veracity and the subsequent testimony to its truth is a striking illustration. Though life was not ultimately saved, it was prolonged by the surgical interference, and for a time consciousness and reason were quite restored. It might be of the highest importance in a similar case if this only could be effected.

"According to Lebert, there is no recorded case of cerebral abscess undergoing the process of cure. It is not improbable that, apart from the fatal tendencies of the malady, the prevalent use of mercurials as remarked upon at the beginning of this paper, may have had its share in this unfavorable history."

On some of the more Obscure Forms of Nervous Affections: their Pathology and Treatment. With an Introduction on the Physiology of Digestion and Assimilation, and the Generation and Distribution of Nerve Force. By HARRY WILLIAM LOBB, L.S.A. and M.R.C.S.E. (London, Churchill, 1858.)

Mr. Lobb in the first part of his work advances opinions, both in physics and physiology, which are diametrically opposed to those ordinarily received. One or two examples will convey a notion of Mr. Lobb's matter and manner.

Adopting a system of molecular physics (which would seem to have scarcely any other foundation than ingenuity) he makes this the master-key with which to unlock several of the mysteries of physiology. He assumes that "The ultimate atoms of all matter are spheroids in a state of vibration" (p. 6); vibration gives rise to certain definite currents; "currents in the spheroid produce rotation; rotation will continue the currents; they, therefore, contain within themselves the elements of their own existence" (p. 8); the currents are electrical currents, and as a consequence we have the conclusion that, as no change of any description can take place in matter without causing currents of electrical fluid, and as the combinations and disruptions which take place during an act of growth, and which occur through the agency of what is termed vital force, or as Mr. Lobb prefers to term it, cell force or cell electricity, are always accompanied by molecular changes, therefore, "Vital force is merely a modification of that remarkable fluid pervading all matter and space, always aiming at equilibrium and yet so easily disarranged" (p. 11).

Mr. Lobb's views will scarcely supersede the views of Mr. Groves and Dr. Carpenter, the former of whom has dealt most ably with the physical relations of electricity, and the latter with the physiological. (On the Mutual Relations of the Vital and Physical Forces, 'Phil. Trans.' 1850, Part II.)

Mr. Lobb advances a theory of the formation of chyle-cells. He states that the initial step in the formation of the cell is the vibratory movements of certain minute crystals of phosphate of lime. These crystals during vibration become coated with the proteine and oily compounds of the chyle forming molecules. "When many of these molecules are formed, they, upon approaching one another, become attached in a line like a small string of beads, vibration still continuing; when a certain number are thus joined, they double one upon another, forming a nucleus, to which minute atoms are continually added, until a tolerable aggregation is the result: this is a mass of molecules. The external atoms now proceed to form a cell-wall, which in this period of its existence is completely invisible: but it consists of minute atoms, between which are still smaller interspaces, which admit of the passage of fluids," &c. (p. 31). A sad shortcoming of this theory is the absence of all proof of the process of formation here said to take place.

As another example of Mr. Lobb's mode of reasoning, the following may be quoted: "Carbonic acid gas is constantly, day and night, winter and summer, although in varying proportions according to circumstances, being excreted by the blood in the lungs; the repair of tissue surely does not require this immense waste of material. The most idle man—the fat unwieldy inhabitant of the Eastern harem, who is afraid to move lest she should lessen her value in the eyes of her lord by losing a portion of her obesity, eats largely. Merely to throw off this waste from the lungs? Surely not; there must be a cause, and it is this.

"The nutriment absorbed by the lacteals, converted into albumen, fibrine, and blood-cells, is conveyed into the most minute interstity of the organism by the capillaries; here the oxygen brought by the blood seizes upon some hydro-carbon with which to unite, giving rise to molecular change—to currents of electricity; these currents are collected by the nerves always accompanying the vessels, and serve to feed the nervous system; at the same time some portion correlates into animal heat, &c. It is then to feed the nervous system that this tissue-change, beyond that really required for repair, is constantly going forward, and so much carbonic acid is excreted from the lungs. It is not, then, a wilful waste, this apparent loss of carbon; on the contrary, life could not last without it—nervous energy would lessen, the extremities and skin would get cold—circulation would become sluggish, and death eventually ensue" (p. 82).

It is certainly a somewhat novel view to regard the carbonic acid given off by the lungs as wasted material, seeing that that gas is commonly regarded as a deleterious product of the decay of some, and the metamorphosis of other tissues, and of the reduction of the carbon of the food, which reduction has especial reference to the maintenance of animal heat. No question of physiology has been more carefully

and successfully investigated than that of the sources of the carbonic acid given off from the lungs, and its relationship to the amount and quality of food taken, and of the degree of metamorphosis going on in the different tissues of the body; but Mr. Lobb appears to ignore altogether the results of the researches on this question. Mr. Lobb, moreover, does not seem to be aware that the electrical conditions arising from changes going on in the intimate structures of the body, particularly in the nerves and muscles, have been made the subject of most successful experimental research by M. E. de Bois-Raymond and others, and that, in consequence, theories upon this subject which are not based upon experiment are neither necessary nor admissible. When Mr. Lobb makes use of the expression "correlates into," *e. g.* "some portion (*i. e.* of the electricity) correlates into animal heat" (p. 83); he betrays a singular misapprehension of the signification of the term correlation.

In the second part of his work Mr. Lobb treats of "certain affections of the nervous system, the symptoms of which are obscure, and which, if not alleviated, would develop themselves into organic degeneration, fatal disease, or insanity." He expresses the opinion that the affections of which he treats depend upon "partial paralysis of some portion of the sympathetic system of nerves, either of their centres or of their peripheric terminations, thus upsetting the healthy process of digestion and assimilation in some portion of its extended course; causing functional derangements, nervous irritability, and frequently sympathetic complication of the most important organs" (p. 124). He discusses the nervous affections which accompany certain morbid conditions of the urine, Bright's disease, and diabetes. He discusses, also, spermatorrhœa, stammering, hysteria, chorea, and epilepsy; diet and regimen, certain medicinal preparations, and the therapeutics of galvanism and electro-magnetism. He adds nothing new to our knowledge of the affections of which he treats, and his therapeutics are in great measure derived from the peculiar views which he entertains on the physiology of digestion and assimilation.

That portion of Mr. Lobb's work which is devoted to spermatorrhœa would appear to be written rather for the public than the profession.

The Human Mind in its relation with the Brain and Nervous System. By Daniel Noble, M.D. (London, Churchill, 1858.)

Dr. Noble entertains several opinions upon several points in physiological psychology which differ from those usually taught. These opinions Dr. Noble first made known in his work on 'Psychological Medicine,' and he now, in a small volume, develops his views more fully. The work forms an interesting epitome of physiological psychology, and it will very probably attract considerable attention even from those who, like ourselves, do not entirely coincide in Dr. Noble's views.

The most noticeable of the opinions advanced by Dr. Noble are, perhaps, the following: He is disposed to think that the vesicular

nuclei within the lateral lobes of the cerebellum—the corpora dentata—constitute the encephalic site of common sensation; and he believes that, in all probability, the optic thalami and corpora striata form the ganglionic centres of emotional sensibility. He dissents, also, from Dr. Carpenter's theory of *unconscious cerebration*, and his remarks upon this question are of considerable interest. He writes thus:

Unconscious cerebration.—"I conceive that the particular facts which seem to countenance the theory of unconscious cerebration, will certainly admit of some more obvious and simple interpretation than one which renders it necessary to regard nerve substance as elaborating and perfecting thought *without thought;* a process, it appears to myself, which would not be altogether unlike the production of melody by a notoriously unmusical instrument, without the sensible manifestation of sounds.

"I would here propose to the reader's attention a fundamental consideration bearing upon this question, which is, that the human consciousness, apart from other analyses of which it is susceptible, is traceable under the two forms of *direct* and *reflex*. In the former cases ideas are in some sense automatic, and for the most part transient; in the latter they are in their origin to some extent voluntary; or, springing up spontaneously, they become designedly retained in the consciousness, and constitute the material, so to speak, of an objective regard. In solitary musing, when there is no intentioned application of the mind to any subject, but rather a passive contentment in our emotional states, consciousness is mostly of the direct character; and, under such circumstances, thoughts and feelings evolve themselves involuntarily, without any sort of effort or purpose. From time to time, however, these mental products are arrested by a reflex act; and the mind involuntarily turns in upon its own thoughts and feelings, thus contemplating not only that which it knows and feels, but at the same time as knowing and feeling.

"Now, although we ordinarily remember facts and mental processes very much in proportion as they have engaged the attention and a certain reflex consideration at any time, this rule is by no means absolute. Ideas and feelings once experienced may at any time revive in the consciousness, and yet not always be recognised as having previously had existence, particularly when at former periods they have never been subjected, by attention, to a reflex mental process. Undoubtedly, under these latter circumstances, numberless thoughts, and reasonings, and ideas of external occurrences, pass for ever from the consciousness; but this is far from being always the case; again and again will they return, without any systematic identification. And are not most of the phenomena cited by Dr. Carpenter in support of his theory of unconscious cerebration explicable by these laws of spontaneous thought, according to which our mental operations are frequently unremembered when repeated. 'Of the thoughts which occur to us suddenly, and which appear to us purely spontaneous, not a few are reminiscences, more or less faithful, of what we have before read, heard, or thought; and consequently they proceed from a preparatory fact which we do not remember.' (*Balmez.*)

"And yet this recovered thinking, when attentively regarded, will

sometimes seem to have the lucidity and perfection of a special revelation, and may well seem as though it were the product of some unconscious operation of the mental organ. Still, by careful consideration and examination, we shall at times procure demonstration of the contrary. In composition, we frequently hit upon an idea, or a word, or the turn of a phrase; it strikes us as a happy thought, and appears to be the spontaneous evolution of our own minds. We afterwards discover, possibly by an accident, that we had heard or read it, yet we had forgotten all about it, and had believed it to be our own. And can we doubt that, in the same way, we sometimes recall our past thinking, deeming it to be new; because we have no conscious remembrance of it? Through ignorance of these laws of thought, or inattention to them, unjust accusations of plagiarism are sometimes made; but 'a writer is not a plagiarist, although he makes ideas his own which have originated with others. And it is often true that man imagines he creates, when he only recollects.' (*Balmez.*)

"In more particular illustration of these phenonema, it may be noted that a book shall be read and soon laid aside; the reader may then pass on to something else, and in a very brief period be unable to render any very clear account of what he has read. Some months afterwards, when the subject of the work becomes a topic of conversation, he is probably surprised that he has derived considerable information from it. How do we explain facts of this kind? Why, in many of such cases, the person situated as supposed in this illustration will discover, upon attentive self-examination, that in his passive musings the contents of the book had been in his spontaneous thoughts; and that, under such circumstances, an acquaintance with its subject had been gradually, but still consciously, perfected. This mental process may probably be with some accuracy designated *involuntary* and inattentive *thinking*, but not with justice an *unconscious action of the brain*. I am decidedly of opinion myself that the explanation now offered of these well-known phenomena will more or less cover all the psychical processes that have been cited to establish a doctrine of unconscious cerebration" (pp. 95—99).

Illustrations of the constituents of Urine, Urinary Deposits, and Calculi. By Lionel J. Beale, M.B., F.R.S. (London: Churchill, 1858.)

Dr. Beale has conferred a boon upon the profession by the publication of this work. The drawings are accurate and very numerous, the descriptions of the general characters of the deposits are clear, and the work is compact, and it will prove to be a valuable aid to the practitioner and student in examining the urine microscopically.

The Unity of Medicine; its Corruptions and Divisions as by law established in England and Wales, with their Causes, Effects, and Remedy. By a Fellow of the Royal College of Surgeons. (London, R. Bailliaire, 1858.)

A Fellow of the Royal College of Surgeons treats learnedly of the corruptions and divisions of medicine in England and Wales, investigating their causes and effects and seeking their remedy. He regards the existing division of the medical profession into physicians, surgeons, and apothecaries, as arising from three great periods of corruption in medicine. The first great period of corruption began with the invasion of medicine by priests and monks, during the sixth and seventh centuries. From the seventh to the sixteenth century medicine was allied with priests and monks — the period of priest-physicians. In 1518 medicine was emancipated from priests and monks, and the pure physician appeared. The second great period of corruption began with the invasion of medicine by barbers, during the twelfth and thirteenth centuries. From the thirteenth to the eighteenth century medicine was allied with barbers—the period of the barber-surgeon. In 1745 medicine was emancipated from barbers, and the pure surgeon appeared. The third great period of corruption began with the invasion of medicine by apothecaries in the seventeenth and eighteenth centuries. From the eighteenth century to the present time medicine has been allied with apothecaries,—the period of the apothecary-physician. Purity and unity of Medicine is sought for, and to obtain this medicine must be emancipated from apothecaries, and united with surgery under one common denomination. This course, according to our author, is the only remedial measure for the present corruptions and divisions in medicine.

Evil Results of over-feeding Cattle. A new Inquiry. By Frederick J. Gant, M.R.S.C. (London: Churchill, 1858, pp. 39.)

Mr. Gant has published the results of certain examinations of the viscera of several sheep, pigs, and horned cattle, which were exhibited at a late exhibition of the Smithfield Cattle Club, and for which, as specimens of healthy rearing and feeding ,prizes of the highest class had been awarded. A greater or less degree of fatty degeneration of the heart was found in every instance. Mr. Gant believes that, "under the present system of rearing and feeding, one disease is of most frequent occurrence—namely, *conversion of the heart into fat*" (p. 22). He is supported in this opinion by the testimony of Professor Luckett, who re-examined the hearts in question, and confirmed Mr. Gant's observations.

"I need scarcely advocate the special importance of this result," Mr. Gant writes; "for no one can dispute the fatal tendency of a disease by which the structure of an organ most essential to life has degenerated into fat. The stomach may, indeed, prepare food for the

production of blood, and the lungs and kidneys may purify it of excrementitious matter, but these departments of the blood-factory are only subsidiary to the heart, whose special duty it is to propel the vital fluid to the most distant recesses of the body, that every part may be nourished and renovated. Yet I found the great central organ more than any other damaged. In the sheep, particularly, the heart has lost its contractile and propelling power, and was converted into a flabby, inert lump of fat. This change had, moreoever, ensued not through the mere accumulation of fat around the heart, whereby its contractile movements would be mechanically impeded. Such an accumulation had, indeed, taken place in the bullocks and in the Devon heifer of the Prince Consort's more especially. Nor did the change in question imply the mere interstitial deposition of fat between the muscular fibres, of which the heart *should* chiefly consist, but the actual *substitution* of fat for fibrillæ *within* the fibres. The fat referred to may itself be regarded as the superfluous food with which the animal had been gorged. It was first deposited in all *loose* parts of the body, these being most adapted for its accumulation—beneath the skin, and around the kidneys, stomach, intestines, and heart. At length, such localities being overloaded, the fat invaded the muscles themselves, by passing in between the fibres. Thus it produced the *streaked* appearance of meat, a condition which, within the limits, in no way interferes with the health of the animal, nor impairs the nutritive quality of its flesh for food. On the contrary, fat itself is a necessary constituent of the most nutritious food; and by no provision can a due proportion of this ingredient be secured so effectually as when it is thus intermixed with the substance of the muscles themselves. Thus, each mouthful of meat contains a wholesome and agreeable proportion of fat, but beyond these limits the animal cannot be fattened without impairing its own health, and also its nutritive value as human food. The two questions, of rearing cattle, and their dietetic value, must therefore alike be referred to their condition as discovered after death" (pp. 32-34).

II.

REPORT ON THE PROGRESS OF SURGERY.

A sketch of the principles and practice of Subcutaneous Surgery, being the Oration delivered before the Medical Society of London in 1857. By W. Adams, F.R.C.S., Surgeon to the Royal Orthopædic Hospital. (London, Churchill, 8vo, 1857, pp. 67.)

In this sketch Mr. Adams lays down with great ability the principles and practice of subcutaneous surgery, and in doing this he vindicates the claims of John Hunter to be considered as the real discoverer of the "subcutaneous method,"—a method which may well be regarded as the most important innovation in modern surgery.

John Hunter, in his 'Treatise on the Blood, Inflammation, and Gun-shot Wounds,' published in the year 1794, points out as a great fundamental principle, in reference to the healing of wounds, the difference between those two forms of injuries, of which one is subcutaneous, the other open to the air. He says—"The injuries done to sound parts, I shall divide into two sorts, according to the effects of the accident. The first kind consists of those in which the injured parts do not communicate externally, as concussions of the whole body or of particular parts, strains, bruises, and simple fractures, either of bone or tendon, which form a large division. The second consists of those which have an external communication, comprehending wounds of all kinds, and compound fractures. Bruises which have destroyed the life of the part may be considered as a third division, partaking, at the beginning, of the nature of the first, but finally terminating like the second. The injuries of the first division, in which the parts do not communicate externally, seldom inflame, while those of the second commonly both inflame and suppurate."*

The deviations from this law in particular instances are then adverted to. Here, then, is the law of the reparative process in these two great classes of injuries.

"In these sentences," observes Mr. Paget, "Hunter has embodied the principle on which is founded the whole practice of subcutaneous

* See 'Hunter's Works,' by J. F. Palmer, vol. iii, p. 240.

surgery; a principle of which, indeed, it seems hardly possible to exaggerate the importance." *

It is the more important, at the present time, that Hunter's claim should be distinctly recognised, because M. Guérin, to whom we are much indebted for the advancement of subcutaneous surgery, and to whom one of the prizes of l'Académie des Sciences of Paris has lately been awarded in acknowledgment of these services, lays down precisely the same law, and in the same words as those quoted from Hunter, without even so much as the mention of Hunter's name. The introduction to M. Guérin's 'Essais sur la Méthode sous-cutanée'† commences with the following sentence: "I have proposed in this memoir to establish a new principle, and to indicate some of the applications of which it is susceptible." And in the following page he observes: "I bring it forward as a principle, that all wounds made under the skin and kept from the contact of the air, neither inflame nor suppurate, and organization takes place immediately." He then tells us that he has proved this principle by numerous experiments on animals and operations on man; that he proposes to make it the basis of a general method pointed out in the memoir; and that "the principle of this method is to know that the wounds excluded from the air neither inflame nor suppurate."

It is enough for our present purpose to place these facts side by side, without comment; but it must at least be regarded as additional evidence of the truth of the observation, that those who trace the progress of modern surgery to its source will not fail to discern, in the principles which Hunter established, the germs of almost all the improvements which have been since introduced.

The illustrations given by Hunter, in proof of the general law above adverted to, are sufficiently conclusive. No surgeon, he tells us, could have failed to observe the difference between a simple and a compound fracture, in reference to the progress and result of the case. How rarely is a simple fracture followed by suppurative inflammation, and how seldom does a compound fracture unite without suppuration, even when the wound is small and apparently insignificant.

Here, then, we have two similar accidents produced in the same way, by the same amount of mechanical violence; or it may be that the simple fracture is occasioned by a greater amount of mechanical violence than the compound fracture. The only difference is, that an external wound exists in the one case, and not in the other; yet how different the results! And who can suppose that the difference depends upon the additional injury to the soft tissues—skin and cellular tissue—which alone distinguishes the compound from the simple fracture.

How severe, also, are the results following open wounds, though never so small, communicating with joints, so frequently fatal to the limb or the life of the patient. And how seldom does any inflammation follow a subcutaneous opening into a joint, if made with proper precautions and followed by appropriate treatment.

* 'Lectures on Surgical Pathology.' London, 1853.

† Paris, 1841.

These facts are of the utmost importance in a scientific and practical point of view, and suggest reflections of the gravest nature, in reference to the principles of treatment to be adopted in certain injuries.

In very many surgical operations, it is true that the surgeon has no choice with respect to the mode of procedure, whether by open or subcutaneous wounds; but, in many instances, modern surgery has proved that the old plan of open wound can be advantageously superseded by the subcutaneous method; and operations, which but a few years or months since were constantly performed by open wound, are now being done subcutaneously.

Mr. Adams especially endeavours to show that, by observing the law pointed out by Hunter, the surgeon can, in many operations, so adapt his mode of procedure as to prevent or regulate the degree of inflammation which might be expected to follow an operation; in fact, that, in no small or unimportant degree, he is enabled to establish the conditions which influence or direct the reparative process in wounds according to one or other of the various processes of healing.

1st. He can perform many operations in the most delicate and important regions, so that no inflammation may follow; such as the subcutaneous operation for the removal of loose cartilages; the section of articular ligaments for the reduction of dislocations, the cure of distortions, &c.; the needle operations for cataract, drilling, &c.; the evacuation of the fluid contents of cavities; the freeing of depressed cicatrices, &c. And, with the object of avoiding inflammation, he is also enabled to combine the object of promoting the development of a new connective tissue, where this is necessary to the restoration of function; as in tenotomy and myotomy.

2d. He can avoid excessive inflammation when its occurrence in some degree cannot be prevented, as in the method of "forced rupture," or forcible extension of partially anchylosed joints; the operation for hernia without opening the sac, &c.

3d. When a limited amount of inflammation is necessary to the reparative process, he can purposely excite it and regulate its intensity, not with absolute certainty, but to a great extent, and generally so as to avoid the dangers of suppuration and pyæmia; as in the various operations for ununited fracture; the several methods of obliterating serous cavities, as in hydrocele, bursæ, &c., by the introduction of foreign substances and other operative procedures; as in Wützer's operation for the radical cure of hernia, &c.; the various operations for obliterating varicose veins; the cure of nævi; the obliteration of fistulous canals by subcutaneous ligature, &c.

4th. When inflammation already exists, he can, by subcutaneous operations, sometimes arrest the inflammatory process, or avert some of its most troublesome and unfavorable consequences; such as the painful tension of certain structures, the formation of external fistulous openings, the extreme distension of cavities, &c. Of these results we have examples in the subcutaneous incisions for the relief of pain in inflamed periosteum; the subcutaneous method of opening bubo; and also other abscesses, such as the psoas and lumbar abscess; the relief

of distended serous cavities, as in pleuritis, &c.; and also of distended joints.

5th. He can so modify the mode of procedure in certain operations, which must necessarily be performed by open wounds, as to limit the inflammation which might be expected to follow, or in some instances entirely to prevent its occurrence. In these operations, continued exposure to the air is avoided, and therefore they are described as "open wounds quickly closed." The operation of extraction for cataract, and the improved method of removing the globe of the eye, are good examples of this series.

It is undoubtedly true that many of the subcutaneous operations which have been mentioned, have not been adopted as the result of a knowledge of *the subcutaneous law* which governs the reparative process, but have been slowly arrived at by the practical suggestions of surgeons who have observed certain effects, without tracing these effects to their causes.

It is, indeed, full time that old notions respecting the treatment of wounds should be exploded, and that the great truth which is involved in the "subcutaneous method," and which is so ably advocated by Mr. Adams, should be both recognised and put in practice.

On Squinting, Paralytic Affections of the Eye, and certain forms of Impaired Vision. By C. HOLTHOUSE, F.R.C S., Surgeon to the Westminster Hospital, &c. (12mo, Churchill, 1858, pp. 210.)

In this work the author endeavours to show that the opposite opinions entertained by some of the leading ophthalmologists of the present day, in reference to the treatment of strabismus, are owing to their imperfect knowledge of its pathology. Mr. Holthouse accordingly devotes a considerable portion of his work to the discussion of this subject, and after giving an analysis of 378 cases of strabismus, he considers himself warranted in drawing the following conclusions:

1st. The most frequent *exciting cause* of strabismus, is some lesion of the nervous centres or nerves; and the next in frequency are inflammatory affections of the eyes.

2dly. The *essential or immediate cause* of confirmed non-paralytic strabismus is a shortening, with or without hypertrophy, or simple hypertrophy, of the orbital muscle in the direction of which the eye is drawn.

3dly. These muscular changes may be associated with thickening and contraction of the conjunctiva and subconjunctival tissue, and an adhesion of these to the sclerotic coat of the eye.

4thly. The above-named changes may affect both eyes, though they are more commonly confined to one eye—in the former case, "it is immaterial which eye is operated on;" in the latter it is not immaterial, but, on the contrary, essential that the affected eye should be distinguished and selected for the operation.

5thly. The imperfect vision of the strabismic eye may either precede and be the cause of the distortion, or may follow and be the consequence of it. In the former case, the operation of dividing the

affected muscle will not remove the imperfection of sight; in the latter it will.

6thly. The morbid changes referred to in deductions 2 and 3 are competent to explain all the phenomena of strabismus.

7thly. The phenomena of strabismus cannot be accounted for on any other hypothesis.

On the subject of treatment the author remarks: "If the view I have taken of the pathology of strabismus be correct, it must be obvious that no treatment can be of any avail in confirmed squint, except division of the shortened muscle" (page 130). He is "well aware that incipient and slight cases of squint may sometimes be cured without operation, and that instances are not wanting, in which more confirmed distortions have been got rid of by persevering efforts on the part of the patient; but even when such efforts have been attended with success, the accompanying impairment of vision is not removed. Now, dividing the muscle by which the strabismus is produced not only rectifies the malposition of the eye, but improves its vision, and on these grounds I hold the operation to be preferable to all other methods of treatment" (Preface v).

In the mode of performing this Mr. H. still advocates the sub-conjunctival method, which was first recommended and put into practice in this country by Mr. Brooke in 1845; again strongly urged and its advantages set forth by himself in 1854; and lastly by Mr. Critchett in 1855. In opposition to this last-named gentleman, who has asserted that both eyes are equally implicated, and that it is therefore immaterial which is selected for operation, Mr. Holthouse maintains that this is not the rule but the exception, and that in most cases it is material to select the worse eye, and to operate on it only. To determine which is the bad eye, Mr. Holthouse employs what he calls the vision test, the value of which depends on the fact that in about 90 per cent., or more, of all strabismus cases, the sight of the most distorted eye is worse than the other. After giving some judicious rules for the operation, Mr. Holthouse expresses his conviction "that there is no operation in the whole range of surgery, which is so entirely unobjectional and free from risk; complete failure can only arise from its imperfect performance, while improvement may be predicated in every case, and perfect success in most" (page 140).

The remainder of the work is devoted to paralytic affections of the eye, and certain forms of impaired vision, in which the author endeavours to prove, and we think successfully, that there is a particular form of amblyopia which is due to muscular action, and which, from its being most frequently observed in strabismus, he has termed strabismic vision. "With regard to the nature of the imperfection," observes Mr. Holthouse (page 173), "it must first be clearly understood, that I do not include under the term strabismic vision every kind of imperfect sight which may accompany strabismus; all I maintain is, that there is, in addition to any and every other defect of sight which may coexist with the deformity, this special one also superadded."

After an enumeration of the symptoms, for which we must refer our readers to the work itself, he continues: "It differs from myopia in

being improved by convex lens—it differs from presbyopia, in requiring the approximation of objects to the eye—from asthenopia, in being persistent and not intermittent—from limited adjusting power, in the total absence of all power of adjustment—and it differs, lastly, from certain cases of incipient amaurosis, in its being remediable by operation. What now is the nature of the defect? Is it a dioptric or a sentient one?

"The symptoms we have described as characteristic of the affection, show that it partakes of the nature of both these defects. In slight cases it would appear to be chiefly, if not entirely, a dioptric defect; in bad cases the sentient part of the eye also would appear to be implicated; and in all, the defective sight, however it may vary in degree, is brought about by abnormal muscular action" (pages 174, 175).

In support of this position the author refers to several cases given in his work, of which the following is perhaps one of the most striking: it is that of a gentleman, 41 years of age, who for the last 5 years had become affected with strabismus of the left eye; previous to this occurrence "both eyes were highly myopic; but afterwards the near-sightedness of the squinting eye was much diminished, and its vision improved. It would appear, therefore, that the slight pressure which must be exerted on the strabismic eye, in an antero-posterior direction, whenever it is straightened, is sufficient to render it slightly presbyopic or to lengthen its focus; hence the improvement of vision in the case just referred to" (page 177). The whole of this chapter on muscular amblyopia is thoroughly original and well worth perusing.

Cases illustrative of a new method of treating deep-seated Inflammation of the Globe or Acute Glaucoma. By Mr. CRITCHETT, Surgeon to the Royal London Ophthalmic Hospital. ('Ophthalmic Hospital Reports,' No. 2, 1858).

When diseases invade the deep-seated structures of the eye, it is extremely difficult to give to them a correct and scientific nomenclature: hence it is that such terms as amaurosis and glaucoma are employed to designate a great variety of morbid phenomena. It seems probable that the extensive use of the ophthalmoscope, and the careful microscopic investigations that are carried out in the present day upon extirpated globes will enable us to employ a more rigid and exact set of terms. The inconvenience at present experienced results from the employment of these terms to designate more than one group of symptoms, so that some confusion is apt to result in the minds of ophthalmic surgeons, in conveying to each other the results of their experience. Nevertheless there are certain well-marked groups of symptoms both objective and subjective, so regular in the order of their sequence, that every practical ophthalmic surgeon at once recognises them; and in proportion to the severity of the disease, to the rapidity with which it developes, to the extreme pain that accompanies it, to its destructive effects as regards sight, and to its intractable character, are the leading

features of the disease impressed upon the memory. The disease of which the cases about to be related are types, usually occurs rather past the middle period of life, and in persons of feeble constitution, either originally, or as the result of some debilitating cause. It generally attacks one eye at a time, and there is frequently a considerable interval between the invasion of the first and second eye. The symptoms come on very suddenly, and proceed with great rapidity. At the outset of the attack the pain is of a most intense character, extending to the brain, and lasting many hours, sometimes two or three days; there are frequent flashings of light, and the sight is rapidly and seriously impaired, and if the disease pursues its course in its worst form, is permanently destroyed. On examining the eye shortly after the onset of the disease, the appearance is very characteristic and peculiar, the pupil is fixed and widely dilated; the humours are dull and muddy, and cannot be fully lighted up by the ophthalmoscope; the surface of the globe is of a bluish-red colour; the deeper layers of vessels appearing chiefly injected. The anterior chamber is reduced in size, and the lens seems thrust forward into the pupil. The globe is tender to the touch and of stony hardness. At a subsequent stage, and when all perception of light is gone, these appearances undergo some important changes and modifications which are not quite uniform in their character. At one or more points the sclerotic frequently thins and bulges, the humours become much discoloured and of a greenish hue, and the lens cataractous. The sclerotic looks thin and of a dark colour, as if the choroid could be seen through it; and upon the surface are seen some large blue distended vessels, showing that the chief onus of returning the blood is thrown upon these superficial veins.

It is to the earlier stages of this disease that Mr. Critchett is desirous of directing attention. It is difficult to localize the precise seat of the inflammatory action at this stage, but it is probably the retina. The distinguishing feature of such cases, that which causes such intense agony, and so rapidly impairs and destroys the sight, is the distension to which the globe is subjected; the perfect balance that subsists in the normal state between the fluids of the eye and their firm inelastic fibrous case is lost, and the latter is placed in a condition of extreme tension by the former; a tension that is constantly increasing until the sclerotic thins and yields to the pressure from within, or until the impetus of the disease exhausts itself. All the ordinary methods of treatment are utterly useless in this disease; the most active antiphlogistic means, such as bleeding, mercury, antimony, &c., exert not the slightest influence in modifying it. All practical ophthalmic surgeons will set their seal to this statement. Nor is this to be wondered at, since the real cause of the acute symptoms is left in full force.

Reflecting on these points, it seems that two indications are especially required; 1st, to relieve the pressure and re-establish the equilibrium between the containing and the contained; and, 2d, to leave for a time a sort of safety-valve to prevent such equilibrium from being again disturbed. With a view of effecting this double object, Mr. Critchett recently performed the following operation.

He introduces a broad needle through the cornea, close to its junction with the sclerotic, and allows the aqueous humour to escape. He then draws out a portion of the iris with a blunt hook, and leaves it in the wound; or, if it protrude much, he removes a portion and leaves the remainder in the wound. The immediate effect of this operation is to remove the tension of the globe, and relieve the pain; the secondary effect is the gradual and steady improvement of the sight; and the remote effect is, apparently, the removal of the tendency to fresh attacks. The idea of puncturing the globe for the purpose of relieving tension in cases of internal inflammation, is very old. It was suggested and practised by Mr. Wardrop and others, and ever since Mr. Critchett has lectured on diseases of the eye, he has advocated the treatment; and in a lecture published in the 'Lancet' of September 9th, 1854, he relates a case in which he put this plan in practice with a very successful result, and urges the treatment of similar cases.

Recently Von Gräfe, of Berlin, has practised a modification of the operation in a large number of cases of acute and chronic glaucoma, his plan being to remove a large piece of iris. The objection to the method of mere puncturation seems to be the rapidity with which the wound heals, and the tendency to relapse into the former condition of tension. And the advantage of drawing out a portion of the iris seems to be to allow time for the adjustment of the normal tension, and perhaps also the establishment of a communication between the anterior and posterior chambers.

Mr. Critchett's object in the present paper is briefly to relate some cases of acute and subacute inflammation of the globe that have recently been subjected to this operation.

Case 1.—In June, 1857, I was requested by my friend Mr. Goude, of Cheapside, to see a middle-aged lady suffering from the following symptoms. Her right eye was the seat of deep aching pain, of an unremittent character, great intolerance of light, and lacrymation; the sight was so imperfect that the back of the hand could not be distinguished from the front, and the fingers could not be counted. The sclerotic vessels were highly injected; the pupil was fixed and widely dilated, and the humours looked dull and dirty; the left eye had been inverted and defective from infancy.

It appeared that this lady had been attacked with severe pain and inflammation of the right eye about a week previous to my visit, resulting in dimness of vision, which had gradually increased. She had been cupped on the temple, and subjected to rather active antiphlogistic treatment, without any apparent mitigation of the symptoms. When I saw her, I found the pulse quick, weak, and irritable, and the spirits much depressed by the severity of the pain, and by the dread of impending blindness; the appetite was bad, and sleep much interrupted. I placed her under the influence of chloroform. I then passed a broad needle through the cornea, close to its junction with the sclerotic, and with the blunt hook drew out a portion of iris, some of which I cut off, leaving the remainder in the wound. The immediate effect of this operation was entirely to remove the pain, to restore the natural tension of the globe, and slightly to improve vision. The pain never returned; and from day to day the sight gradually but steadily improved, until at the end of three weeks average-sized print could be read; and at present

the sight is as good as before the attack. The pupil was of course altered in shape, but had recovered about its average size and mobility.

Case 2.—About two months after this first case, the wife of a large Sussex farmer sent for me, suffering in the following way. The left globe was the seat of acute inflammation. The pupil was so widely dilated that the iris presented merely a narrow ring. The anterior chamber was diminished in size, and the humours were of a dull aspect, and could not be lighted up with the ophthalmoscope. Vision was so much obscured that only the dim outline of objects could be made out. There was constant severe pain in the globe, the constitutional powers were at a very low ebb, the pulse very small and feeble. No sleep could be obtained, and there was distressing nausea of the stomach.

An interesting feature in this case was, that the right eye had been attacked in a precisely similar manner about nine years ago, and at the end of six weeks, in spite of very active local and constitutional treatment, sight was entirely lost. I then found a fixed and widely dilated pupil, a hard globe, secondary cataract, and all the evidences of a spoiled eye. Immediately I was called to this case I performed the same operation as in the one I have just related. Considerable care was required not to wound the lens, which was thrust somewhat through the pupil and near the cornea. The result was most striking and satisfactory. The pain and sickness immediately ceased and did not recur; sight steadily improved from day to day, and in three weeks the patient returned into the country, able to read a good sized print. The pupil became much smaller and active. I have since heard a very favorable report, and that the sight is as good as ever it was.

Case 3.—This case came under my care at the Royal London Ophthalmic Hospital. William Almerott, a man æt. 34, a working engineer, was led to me on September 4th, having lost all power of recognising objects, and retaining very little sight beyond the mere perception of light. On examining the case the left eye was found in a state of chronic inflammation, the sight having been entirely lost from injury. About five years ago, the right eye was the seat of acute inflammation of the globe, with widely dilated pupil, and a thin layer of lymph over the surface of the capsule of the lens. The history of the case was curious and instructive.

About five years ago, when at work, a piece of metal flew into the eye, wounding the cornea and sclerotic, the iris and lens; this was followed by severe pain and inflammation, and by total loss of sight; the globe became soft and diminished in size, but remained tender to the touch, and at times was painful. Since then the man has had occasional attacks of dimness in the other eye when at work, which lasted some hours, and then passed off entirely. Five days before I saw him he was seized in the night with intense agonising pain in the globe, which lasted several hours, and in the morning he was nearly blind. A medical man was sent for, and he was placed under active antiphlogistic treatment. The pain did not recur, but a dull aching remained in the globe, which was of stony hardness, and the sight remained in the came condition as when he was led to me. All my previous experience induced me to take a most unfavorable view of this case. The intensity of the pain, the rapidity with which previously good sight had been nearly destroyed, the extreme dilatation of the pupil, the dulness of the humours, and the evidence of inflammatory effusion on the capsule, all conspired to give a gloomy aspect to the case. It was, therefore, with feeble hopes of success that I proceeded to operate. When under the full influence of chloroform, I first removed the injured and diseased globe, and then performed the same operation as I have previously described on the right eye, drawing out a piece

of iris and leaving a portion in the wound. On recovering from the effects of the chloroform he stated that he was now quite free from pain, and that he could see better than before the operation. Since that time he has had no return of pain; the sight steadily improved from day to day, and at the end of a fortnight he could see to read moderate-sized print, though everything still looked misty. The pupil, though of course altered in shape, has recovered its normal size and responds to the stimulus of light; the thin layer of lymph is still visible over the capsule, and it seems probable that the same slight cloudiness of vision will remain, though not to such an extent as to prevent him from following his employment. I think this is the most striking and satisfactory case I have yet had. It illustrates forcibly the injurious sympathetic effect of a damaged and spoiled eye, in which a smouldering inflammation still lingers, upon its companion; inducing, first, attacks of congestive, but temporary dimness, and then, acute inflammation of the globe, and it further shows the steady recovery of the recently-attacked organ when the extreme tension to which it had been subjected is effectually and permanently relieved by operation.

Case 4.—This case was that of a lady, who had been many years a governess, and had recently resided in the "Home for Gentlewomen," in Queen's Square. She first came under my care at the Hospital, about six years ago, suffering from deep-seated disease of the left globe, combined with cataract and partial staphyloma, which occasioned her severe pain. For this I removed the anterior part of the eye (an operation that was usually performed at that time in similar cases). The globe gradually diminished and healed, and an artificial eye was subsequently worn. Early in the spring of this year this lady had a slight attack of hemiplegia, from which she slowly recovered, and for which she was subjected to rather severe discipline; low diet, active medicines, and bleeding. In the autumn of this year she was suddenly attacked with severe pain in the right eye and dimness of vision. This continued to increase until on the fourth day she could not distinguish even large objects, and when I saw her six days after the attack, she could only distinguish light from dark. I found a widely dilated pupil, a dull state of the humours, and all the symptoms I have previously described. I performed immediately the same operation as in the other cases, and the result has been equally satisfactory—the pain almost immediately subsided, and the sight gradually but steadily improved. I saw her about a fortnight ago. The pupil was moveable, and she read moderate-sized print to me with the aid of her usual glasses.

Case 5.—This, the last case that I would briefly notice, is one that seems to yield a sufficient amount of negative evidence in the same direction as those I have already related, to deserve notice. Early in November, I was requested by my friend, Mr. Boar, to see a lady suffering from severe inflammation of the right globe, of about a week's duration. The pain, which was somewhat mitigated when I saw her, had been most intense. The pupil was widely dilated, the humours were dull, and there were all the usual symptoms of deep-seated disease of the globe. The sight was much obscured. This state of things had existed about four days. I urged the operation that I had performed in the other cases with such signal success, but I could not succeed in obtaining the consent of the patient. The result has been that, although the pain has gradually subsided, the pupil has remained widely dilated, and the sight is permanently and seriously impaired.

The merit of the operation is, that it is easily and quickly performed, and that the wound speedily heals; and the disadvantage of

it is, that it produces a permanently deformed pupil. This objection is in some measure obviated by an ingenious suggestion of Mr. Bowman: That the pupil should be drawn nearly directly upwards, so as to conceal the irregular portion beneath the upper lid. It would be foreign to the object of this paper to inquire how far this proceeding is applicable to other cases of a chronic character, as its original promoter believes.

On the treatment of Lachrymal Obstructions. By Mr. Bowman, F.R.S., Surgeon to the Royal London Ophthalmic Hospital. ('Ophthalmic Hospital Reports,' No. 1, October, 1857; No. 2, January, 1858.)

As early as 1851, Mr. Bowman began to treat all cases of lachrymal obstructions by slitting up the punctum and by passing probes of suitable size through the upper or lower canaliculus. In this way he avoided the inconveniences of the opening in the skin required in the former objectionable treatment by the style; and from the very beginning he establishes a permanent opening, unseen, and attended by no inconvenience, through which the use of the treatment by probes can at any time be at once resumed in the event of relapse. In place of the old operation by the style—indeed, an operation in every respect clumsy and unsatisfactory—an operation is introduced which is both sightly and satisfactory.

In the course of his investigations on this subject, Mr. Bowman has kept constantly in view the analogy of obstructions of the lachrymal ducts with those of the urinary passages. These obstructions are in many respects closely allied, and the history of urethral strictures may furnish some hints which are applicable to the treatment of lachrymal strictures.

Before the proposal to slit up the punctum, some anatomists may have been aware that the canaliculi were capacious ducts, large enough to admit an ordinary probe; but, certainly, surgeons took no account of that important fact. They have been syringed, and probes have been passed down them; but the instruments employed were only such minute ones as the puncta would admit, namely, of the size of a horse-hair. It may be even true that such probes may have been passed into the nose, but their effect, even then, can have been only such as would be produced on a urethral stricture if the surgeon were restricted to the use of the smallest urethral bougie. They may have passed the stricture, but can have done little to dilate or cure it.

When Mr. Bowman first began to slit up the puncta he became aware that the canaliculi were naturally capacious enough to admit a probe of one twentieth of an inch in diameter or more; and finding, not unfrequently, that strictures existed in the canaliculi, sometimes about the middle, but oftener close to the sac, he had a series of probes constructed, reaching from a fine hair probe (No. 1) to one of one twentieth of an inch diameter (No. 6). For convenience in use he has three probes, the six ends of which give the six sizes required, and the larger of which are so bent as to facilitate their passage through the nasal duct as hereafter to be noticed.

In the great majority of cases of sac-obstruction, a simple epiphora precedes, for a considerable period, the more inflammatory stages; there is regurgitation only of tears at first, afterwards of mucus, and of pus; the two latter being often rather sudden in their appearance, and often following immediately on a cold or catarrh, or some stomach derangement. The moment the secretions from the lining of the sac become too thick to escape easily, either through the canaliculi or nasal duct, they appear at once to aggravate the inflammation by mechanical distension; and the author was early led to assign much benefit to the opening of the punctum, merely on the ground of the greatly increased facility with which the discharge could then escape on to the eye, either spontaneously or on slight pressure. The punctum, too, having, no doubt, the attributes of a sphincter, is often highly sensitive, and its lips turgid and angry, when the passages are inflamed; and great immediate relief to the whole disease seems often to follow its division—much, perhaps, of the same kind as that which follows the division of the sphincter ani in irritable fissure of the rectum.

The punctum is most conveniently slit up as follows: The patient sits in a chair and leans the head against the chest of the surgeon, who stands behind and bends over. For dividing, *e. g.*, the left lower punctum, the ring finger of the left hand is placed on the skin over the lower edge of the orbit, and fixes it there, while tightening or relaxing the lower canal by a sliding movement of the skin upon the bone—the punctum being at the same time everted. The right hand now inserts the No. 1 probe while the canal is relaxed, and then places the probe between the index finger and thumb of the left hand, which holds it in the canal, and further everts the punctum by turning the probe downwards on the cheek, while the ring finger stretches and fixes the canal by a sliding movement of the skin outwards, toward the malar bone. A fine, sharp-pointed knife, held in the right hand, now slits up the canal on the everted conjunctival aspect, from the punctum, as far as the caruncle, and the probe is raised on its point out of the canal, to make sure that the edge of the punctum has not escaped division. Care should be taken not to slope this little incision obliquely through the tissues it severs, as there is then a broader surface exposed, and greater chance of union by the first intention. To avoid this, it is in all cases desirable to pass a probe across the line of incision, on each of the few ensuing days, to break through adhesions if they form, and to secure patency. If the punctum is slit when already inflamed and discharging pus, there is much less disposition to this primary union than when it is done for simple epiphora.

Having slit up one or both puncta, as may seem desirable, the canals are at once probed to ascertain whether they are of full size. Where the fluids of the sac regurgitate towards the eye there is usually no contraction that may not be at once overcome by a full-sized probe (No. 6); but it is well to have noted beforehand, whether regurgitation occurs from *both* puncta, and in the first instance to be content, in ordinary cases, with slitting up the lower punctum, inasmuch as this usually suffices for the cure, and it is through this

that the passages can be most conveniently probed in their whole extent down to the nose.

In examining the canal for stricture some experience and tact are requisite to avoid errors, just as in the examination of urethral strictures. The instrument should be handled very delicately, and the canal held by the surgeon in the same way as when the puncta have to be slit, and he should, of course, have in his mind's eye at the moment, the anatomy of the parts with which he is dealing—no *force* should be used. If No. 6 will not pass, No. 4 or No. 2 may be tried; and if these fail, it is better to postpone further proceedings till a few days have elapsed, and the slit in the canal is permanently established. Speaking loosely of the general result of a great number of cases, Mr. Bowman says that he has not found any stricture in the canals in more than one fourth, and that the common situation of the stricture has been close to the sac—less frequently about the middle part of the canal. The stricture of the middle parts is commonly in old cases, where there is rigid thickening of the coats, and probing by instruments successively larger suffices to dilate it. The canal should be stretched lengthwise as the probe reaches it, as its passage is thereby facilitated—for it is easy to fold the canal before the point of the probe. The greatest care is to be taken to proceed gently and not too rapidly—as, if a false passage be formed and the wall of the canal torn, the injured part is liable to become more rigidly occluded.

If the exploratory probe is arrested at the point where the canals coalesce and join the sac, the fact may be known by noticing the skin near the tendo oculi is moved when the probe is moved, and an elastic resistance is experienced; whereas, if the probe has entered the sac, it hits against the inner bony wall, and the skin is motionless. Where the sac is not distended, attention to this point is particularly necessary, and it is also requisite that the canal should be held on the stretch by the finger on the cheek, otherwise the outer wall of the sac may be pressed against the inner and give a wrong indication, for the opposite walls are very near each other. Care must also be taken, when an obstacle is encountered, to turn the point of the probe in different directions, urging it gently forwards in each, for otherwise it may merely be caught in a fold of membrane at the orifice to the sac. If there is decided obstruction still, the probe may be forced here, and if it does not then at once pass into the sac (and particularly if, the sac being distended, there is no regurgitation by the canal), Mr. Bowman has recourse to the *canula-lancet*, described in the 'Annales d'Oculistique' of 1855-6, and, after piercing the obstruction, immediately passes the largest-sized probe (No. 6).

Such strictures of the canals, when once they admit a No. 6 probe, are treated by its repeated use at suitable intervals, in conjunction with the treatment of the passages below, and therefore they need not be further separately dwelt upon.

With regard to the subsequent steps of the treatment, Mr. Bowman prefers to explore the nasal duct by pushing down the No. 6 probe into the nostril. When the sac discharges pus or mucus, this always has to be done again and again, in order thoroughly to open the duct,

and even where the sac is not inflamed, it is satisfactory to have passed the probe once.

The passage of a probe or style in the old method, through an orifice in the skin, is not always an easy task. There is frequently a firm closure of the nasal duct, requiring the use of considerable force to overcome it, and a surgeon without experience is apt to be timid or to make pressure in a false direction. In fact, with the old style or probe, which was always straight, it was often impossible to find the lower orifice of the sac, and the rude force exerted was apt to make the end of the style scrape the surface of the bone, and detach the membrane from it. When the probe is introduced in Mr. Bowman's method, from the canal, it enters the sac *behind* the tendo oculi, and is in a better position for *finding*, as it were, the orifice of the nasal duct. But to make this proceeding as easy as possible, the author uses larger probes (Nos. 5 and 6, which are the only ones used for this purpose) *slightly* curved at each end in two different directions within the terminal inch or inch and a half, while the central part (or that held by the finger and thumb, is straight, and they are cylindrical in their whole length. The effect of this is that when the probe is inserted into the sac, and brought into a vertical position, a slight rotation of it on its long axis makes the lower point, which is in search of the orifice of the duct, describe a small circle; and by slightly varying the inclination of the probe and making gentle pressure at the same time, with slight rotation, the point never fails to enter the duct. The right and left probes have opposite curves, to suit the inclination of the duct.

The probe is known to have entered the nostril by the depth to which it has entered compared with the external position of the nostril, and also by its coming in contact with the floor of the nose. It is allowed to remain there for a few minutes, or is immediately withdrawn, according to circumstances.

In any ordinary case of chronic inflammation of the sac, the cure is regarded as well begun, and often half accomplished, as soon as a full-sized probe has thus passed into the nose through the whole course of the natural channels. To repeat the probing is a very simple process, the enlarged punctum being always ready to admit it, and the proceeding being usually more easy each time it is practised. The probing is repeated every day, every other day, every three or four days, or every week, according to the progress of the cure and accidental circumstances. It usually becomes at once easy for the patient to press mucus or pus from the sac, as it is secreted, both by the canaliculus and nasal duct; he is enjoined to do this very frequently, and hot fomentations are used if required. It is common to find in a few days that no more pus is formed, and in a few weeks that mucus ceases to accumulate. In many cases the relief to the epiphora is immediate, and the patients are made at once much more comfortable, losing all that distress that has been occasioned by the distension of the cavity of the sac, and the congestion of its lining membrane.

Rather more than a year ago Mr. Bowman contrived a mode of inserting a style by the canaliculus, and leaving it for a certain time in

the passages, in order to open them on the principle of the old style. The style was made to taper rather suddenly at one end, and it was bent at about a right angle, so that the thick part should be placed vertically in the sac and nasal duct, and the thin part horizontally in the canal. The length of the thick part was adapted in each case by the surgeon, so as to extend from the point at which the canal enters the sac downwards as far as the floor of the nostril, on which it rested, being thereby prevented from falling too low and burying itself out of sight. The proper length was ascertained previously by measurement by a probe. The horizontal part was, in like manner, adapted to reach to a point of the canal midway between the caruncle and the punctum, and a bend was given to it, making it lie exactly within the canal, concealed from view in the channel formed by the slitting up of that passage. The material was silver, and the ends, after being cut to the requisite length, were carefully rounded, and the thin one tipped with sealing wax.

These *bent styles*, when suitably adjusted, Mr. Bowman found could be generally worn with very little inconvenience for a few days, and admitted of being readily removed and reinserted, and he still employs them when the stricture is dense and obstinate, or when a rapid opening of it is required. But they sometimes occasion trouble, and become a source of irritation, and they may even produce ulceration of a portion of the canal if badly fitted, or if left in too long, as, for example, when the patient has absented himself during the treatment.

Mr. Bowman therefore prefers to treat the obstructions in almost all cases by the intermittent use of the probe, as already described, and especially as the results by that method are so satisfactory. He does not recommend the bent styles for general adoption.

In speaking of the rapid relief or cure of cases thus treated, such general and local means as are familiar to all are not neglected. They are useful as aids, but without the surgical interference would be unavailing. Nor is it represented that all cases get well at the same rapid rate, or that relapses never occur. Unfortunately these cases of obstructed ducts generally occur in subjects more or less debilitated, scrofulous, or otherwise unhealthy, and there may be complications of disease of neighbouring parts or of the Schneiderian membrane. But all these inconveniences belong to the old method even more than to this, the advantage of which is that it effects the opening of the passages in the most simple way conceivable, and with the least possible interference with the natural structures. It, therefore, seems preferable, not merely in itself, but also inasmuch as it is able to be employed in the required degree and extent, and in that only, at a period of the disease however early, and under all contingencies of relapse; and therefore, if generally adopted, it may be expected to alleviate the severity and diminish the number of these distressing affections, which have been hitherto hardly less troublesome to the surgeon than to the patient.

Mr. Bowman also states that there are cases of an aggravated nature, which have passed beyond the stage at which the above simple treatment is available—where abscess has formed, where the sac is enormously dilated and thickened, where bone is diseased, where styles

have been previously worn, and fistulous orifices exist. The hope is, that such cases will gradually now become less frequent.

In a postscript to this paper, contained in the second number of the 'Ophthalmic Hospital Reports,' Mr. Bowman adds:

"To facilitate the slitting up of the punctum, a minute director may be substituted with advantage for the No. 1 probe, as described in the previous paper. It has been made by Mr. Weiss, at the suggestion of Mr. Critchett, and consists of steel coated with gold by the electrotype process. It is sufficiently thick in the stem to give it firmness, and one end is reduced to a very fine size, and grooved to within a line of the extremity, which is of the size of a No. 1 probe. It is used in the same way.

"I may take this opportunity of saying once again, how cautious it is necessary to be in the manipulations of the canaliculi, particularly when they are the seat of stricture, and how desirable to proceed gradually from one step to another, not neglecting subsidiary points of treatment. I may also state that when one canaliculus is strictured and the other open, I prefer to proceed with the treatment of the sac and nasal duct through the open canaliculus, leaving the other alone; for a stricture of one canaliculus is often of itself insufficient to occasion any epiphora, and if the sac-inflammation and the stricture of the nasal duct can be cured by probes conveyed through the open canaliculus, the patient is relieved effectually, even should the other remain strictured, which it often does not. In such instances, however, I always slit up both puncta."

Case of Aneurism of the Arteria Innominata treated by pressure on the distal side. By Mr. EDWARDS, Demonstrator of Anatomy in the University of Edinburgh.

The mode of treatment which was employed successfully in the following case, does not appear to have been tried on any previous occasion.

CASE.—In September, 1856, Mrs. L—, æt. 50, was recommended to my care by Professor Simpson. She was a sallow-complexioned woman, with hanging, flabby cheeks; her lips, which were always apart, were livid and drawn down at the angles, and she breathed rapidly. Her countenance presented the peculiar anxious expression of one suffering from a fatal disease. On examining her neck, I found on the right side above the sterno-clavicular articulation a tumour, the size of an apple, situated between the sterno-mastoid muscle and the middle line of the neck, which pulsated violently, was soft and compressible, giving to the fingers much the same feeling as a vulcanized india-rubber ball, which, though easily compressible, expands again immediately the pressure is withdrawn; and with the expansion of this tumour, fluid seemed rapidly to fill the interior, and to be separated but by a thin partition from the fingers. Another pulsating tumour rose in front of the trachea. They were, though apparently distinct, evidently bulgings out of the same aneurism, as pressure on the one was followed by increase in size of the other. The patient had remarked these tumours about two months before I saw her, and they were, according to her account, increasing rapidly. Any pressure upon them was attended with pain and an increase of cough.

She suffered from constant dyspnœa, had entirely given up her ordinary household occupations, and had frequent fainting fits; she rarely ventured even at night to lie down in bed, as, after falling asleep, the laryngeal spasm became so violent, that an attendant had to be on the watch ready to administer restoratives. The ordinary internal remedies were tried, but without much benefit.

As I considered that the aneurism was one of the innominata artery, I thought of placing ligatures on the vessels according to Wardrop's method; but Dr. Laycock, who at my request examined her chest with the stethoscope, considered that the arch of the aorta was also aneurismal, so I gave up the idea of a cutting operation. But it struck me that Mr. Wardrop's principles could be applied to compression, and Mr. Young, of Princes Street, constructed for me an instrument which I shall endeavour to describe:

A broad leathern belt to go round the chest, and fasten in front with three straps and buckles. On its left posterior and right anterior upper margins are brass buttons. In the middle of its posterior aspect is an iron plate perforated with several holes to admit screws, which attach to it an upright steel rod about eighteen inches long. This rod supports an arc of steel, which is attached to it by a screw allowing a certain amount of motion. In front, this arc is perforated by another screw, about an inch long, with a small cross handle; this projects backwards, and bears a conical piece of cork covered with wash leather. When the instrument is applied, the upright is at the back and right side of the neck, which rests in the arc, and, by shifting the lower end of the upright, pressure with the cork can be regulated and efficiently maintained upon the common carotid artery, the conical shape of the cork enabling one to confine the pressure to the artery. A strap is carried over the right shoulder from the buttons behind to those in front; on it slides another cone of cork, which can be adjusted over the subclavian. It will be seen that in principle this instrument resembles Bourgery's tourniquet for subclavian pressure.

Mrs. L— had worn this instrument for several hours of two days, when I was alarmed by observing that the tumour had visibly increased in size. Its walls felt thinner, and the contents were distinctly fluid. The *bruit de soufflet* was very loud, and the pulsation violent. The treatment, however, was continued, and the pads adjusted so as to stop all pulsation in the branches of the external carotid and in the right wrist. On the fourth day, the tumour, though larger than when the instrument was first applied, was much harder and less compressible. The tracheal portion still, however, pulsated violently. Every morning, for the first two weeks, I adjusted the apparatus, at the same time manipulating the tumour rather roughly, with the view of breaking up the fibrine in the sac. But she soon learnt how to apply it for herself, and finding decided benefit from it, bore the treatment cheerfully. She said it was irksome, but never complained of pain.

After the first week, the laryngeal symptoms entirely disappeared and did not return, and she had no more fainting fits; but she complained of some impediment in swallowing, as if some hard body stopped the food in its passage down the gullet. I now feared that the apparent improvement was deceptive, and that the tumour was increasing towards the œsophagus; but as this symptom disappeared with the gradual decrease in the bulk of that part of the aneurism which we could judge of by external examination, I now conclude that it arose from the solidification of the contents of the sac in close apposition to the gullet.

By the end of three months, she was well enough to lay aside the instrument and resume her former household duties. She repeatedly walked a

distance of three miles and back to my house, and passed tranquil nights. The external part of the tumour was then and is now the size of a nut, and hard; the tracheal portion has entirely disappeared; the aortic aneurism seems to have made but little progress, and, with the exception of attacks of neuralgia in the face and head and a chronic cough which troubles her every winter, she has been in good health since. She gave up the instrument more than ten months ago. Before she began to use it, a surgeon of great experience told me he expected the external tumour would burst in a day or two, and Dr. Laycock was of the same opinion. Of course, I cannot hope to avert the fatal termination we must always expect in thoracic aneurisms; but I am convinced, and so is the patient, that the compression of the vessels beyond the aneurism was attended with marked benefit, and was the direct cause of its hardening and subsequent rapid decrease in its size.

The Enlarged Prostate, its pathology and treatment; with observations on the relation of this complaint to Stone in the Bladder. By HENRY THOMPSON, F.R.C.S., M.B., Assistant Surgeon to University College Hospital, Consulting Surgeon to the St. Marylebone Infirmary, &c.

This work is of a thoroughly sound and practical character. It contains a large amount of new matter and original thought, and it fairly and fully states what had been done by previous investigators in the same subject. It is a work, indeed, with which few readers can be dissatisfied.

The anatomy of the prostate, and the anatomical characters of the enlarged organ, form the subjects of the first two chapters; and here we find the result of not less than seventy original dissections and a careful examination of the dissections contained in the different metropolitan museums. What these results are may be seen by turning to the abstract of a previous paper which will be found in a former volume (xxv, p. 189), and here we will only say that the two points upon which most stress is laid are—first, that the "third," or "middle lobe," is a diseased and not a natural portion of the prostate; and, secondly, that there is an analogy between enlargement and tumours of the prostate and those of the uterus.

The alleged causes of senile enlargement of the prostate are treated of in the third chapter, and here, after stating the views generally entertained on the subject, enlargement of the prostate and uterus are shown to be identical in their nature, and probably in their causes.

"There is but one other organ in the body which is similarly constituted, as regards the nature of the constituent tissue, and in the manner of its aggregation. The uterus, like the prostate, is composed of the inorganic muscular tissue distributed in thick strata, so as in either case to form a thick mass, not in thin planes, as found in all the other organs in which this tissue appears. The tendency to become the seat of local and general hypertrophy, of isolated tumours and outgrowths of a special character, which both organs equally manifest, has also been demonstrated. Starting from this remarkable fact, it is difficult to resist the inference that this tendency to overgrowth, this disposition to generate fresh elements identical in character with those proper to the

structure of the organs, has a source common to both, and perhaps inherent as a kind of structural, or perhaps functional necessity. The capability of this structure for exhibiting rapid and enormous increase under certain circumstances, is admirably exemplified by what happens to the gravid uterus. A dormant force is awakened through the presence of the impregnated ovum, and the weight and bulk of the organ is in a few months increased tenfold. Active determination of blood is coincident, and doubtless supplying the materials of nutrition, but not venous congestion, nor any one of the numerous alleged causes of prostatic hypertrophy already referred to. But the uterine function having ceased temporarily or permanently, the organ diminishes and returns sooner or later nearly to its original size. During the latter moiety of the term of reproductive activity, the uterus is exceedingly prone to develope formations, identical in structure with its own, but more or less isolated from the parent tissues, either in the form of tumours or outgrowths, and these are associated with general development of the normal parts of the organ. These phenomena are observed, perhaps, with greater frequency in the virgin than in the impregnated female, showing that they do not depend on any force called into play by pregnancy, but on one irrespective of it, and possibly inherent in the structure of the organ, or associated intimately with some function peculiar to it.

"It is an interesting circumstance that the prostate, male homologue of the uterus, should exhibit analogies in many points of view with the latter organ in regard of its tendency to overgrowth. The most obvious explanation, and the conclusion which, after a careful examination of the subject, is that which appears to me better supported than any other, seems to be offered in the simple fact now completely established, that the structure in both is exceedingly prone to develope, among its component elements, minute, independent, or isolated formations, possessing an organization identical with itself; which formations in the majority of cases do not increase beyond a certain very limited size, and do not interfere with the performance of any known function in either sex, but which, in exceptional instances, continue to be developed, for the most part only, during a certain limited period of life, say, in general terms, between thirty-five and fifty in the female, and between fifty and seventy in the male; in the one case appearing in the form of uterine hypertrophy or tumour, in the other in that of prostatic hypertrophy or tumour. Whether the formation of these products is anything more than a contingency of structure, that is, whether it be connected with any functional action common to the structure in both cases, is more doubtful.

"Anatomical examination of the enlarged organs, prostate and uterus, demonstrates the arteries and veins to be both enlarged, the latter, probably, as a result of the former. An increased supply of arterial blood is coincident with the increasing size of the organ; but whether the vascular determination precedes or closely follows the commencing development it would not be easy to affirm.

"Are there any circumstances in the mode of life, or of pre-existing disease, which we are warranted by reasonable evidence in considering causes of prostatic hypertrophy? I know of none. The fact that almost all known causes of diseases in general have been alleged to be so

of this one in particular—what is it in reality but a tacit expression of the same opinion? Every diathesis—gouty, rheumatic, tubercular, syphilitic, has been arraigned as the offending cause. Every form of local excitement possible to the pelvic viscera has been similarly held accountable. Thus it follows that the bearing of any single circumstance becomes neutralised in the concourse of numbers. Every proposition finds its refutation in the presence of some other one among the multitude.

"The origin of hypertrophy being thus attributed to a necessity of structure, no doubt all circumstances which tend to induce active determination of blood to the locality may aid in its development. Thus we find emotional excitement of a sexual kind, and actual excesses, overstimulating food, sedentary habits, horse exercise, and many other conditions having a like tendency, enumerated among the causes of this affection. But the *initial* step in the causation of hypertrophy is, I believe, independent of, and probably uninfluenced by, any of these circumstances, although they doubtless tend to increase already-existing disease. And thus it is that much may be done by judicious treatment, by well-directed management, to retard the progress of enlargement, that disposition being exceptional to the majority of cases, even where the seeds of overgrowth exist, as in the form of minute tumours or commencing outgrowth. All that tends to diminish the local supply of arterial blood to the organ may be held to favour the condition of *statu quo*, or slow increase. This, however, is not the place to enter further on the subject of treatment; the allusion made is sufficient to illustrate the question under consideration."

The symptoms of enlarged prostate, the effects of enlarged prostate in relation to the function of micturition, the diagnosis of prostatic and other obstructions at the neck of the bladder, the treatment of senile enlargement, the treatment of retention of urine from enlarged prostate, enlargement of the prostate from inflammation, malignant disease of the organ, tubercular disease and cysts, the bar at the neck of the bladder, prostate concretions and calculi, form the subjects of successive chapters. There is much valuable matter under each of these heads, but we would especially instance the remarks upon the effect of enlarged prostate upon micturition, upon malignant and tubercular disease, and upon diagnosis and treatment. The last two subjects, indeed, are in every respect deserving of attention.

The last chapter is devoted to a careful consideration of that important, but not uncommon complication of enlarged prostate, stone in the bladder, and especially of the best modes of successfully applying lithotrity as a means for its removal.

III.

REPORT ON THE PROGRESS OF MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN.

A Manual of Obstetrics, Theoretical and Practical. By W. Tyler Smith, M.D. (London, Churchill, 1858.)

Mr. Churchill has added to his admirable series of manuals one on obstetrics. Dr. Tyler Smith is the author of this manual, and in it he gives an excellent digest of the anatomy and physiology of the reproductive organs, and of the theory and practice of obstetric medicine and surgery. The work will prove a very welcome addition to the library of the general practitioner, and it will no doubt become a great favorite with students. The whole of the subjects entering into a treatise on obstetrics are discussed with great clearness, and notwithstanding the brevity which is necessary to the construction of a manual, the work is not only very readable, but the most important of the debated questions, both in the physiology and pathology of the reproductive organs, as well as in practical obstetrics, are so well set forth, that the 'Manual' is calculated to prove a valuable guide to those students and practitioners who may desire to become independent observers, and to record for scientific and practical purposes the results of their obstetrical experience. Not the least interesting portion of the work is that in which Dr. Smith sums up his views on the nervi-motor functions of the uterus.

As an illustration of Dr. Smith's style, and as a valuable summary of a debated but very important question in obstetric practice, we quote, in the main, Dr. Smith's remarks on the partial or entire separation and extraction of the placenta in cases of placental presentation.

After treating of the use of the plug, or tampon, puncturing the membranes, and turning the child in these cases, Dr. Smith proceeds:

"I have now to refer to the artificial extraction of the placenta before the birth of the child, which has certainly been one of the most prominent points in obstetric practice during the last ten or twelve years. It is one the settlement of which is of great interest, as nothing can be more unsafe than halting between two opinions upon such a subject. From an early period it had been remarked by accoucheurs that cases of

unavoidable hæmorrhage were occasionally met with, in which the placenta was expelled spontaneously before the birth of the child, and that others occurred in which the hæmorrhage was arrested by the spontaneous separation of the placenta. The first person who seemed to have pointed out the deduction of a rule of practice from such cases was Mr. Chapman, of Ampthill. The placenta was also removed in some cases of placenta prævia by Mr. Kinder Wood, of Manchester, and subsequently by Mr. Radford. Probably cases have always occurred in which accoucheurs, finding the placenta loose in the vagina, or almost entirely detached, have removed it. Dr. Simpson took up this subject in 1844, and with his usual ability and force, pointed out what he considers the advantages of this operation, the principles upon which it is founded, and the cases in which it is applicable. The tenor of Dr. Simpson's earlier writings was such as to lead to the belief that he wished to supersede, in great measure, the operation of turning, by the separation and extraction of the placenta. This impression has continued to a great extent up to the present time, and it is upon this impression chiefly that its opponents have attacked and denounced the operation. In one of his latest publications on the subject, in 'The Lancet,' 1847, vol. i, he has corrected this, and insists upon the limitation of the extraction of the placenta to cases 'where the other recognised modes of management were insufficient or unsafe, or altogether impossible of application,' or where the old methods of practice 'were attended by extreme hazard or extreme difficulty.' Dr. Simpson combined with his advocacy of this practice an exposition of his views as to the source of the hæmorrhage in placenta prævia, which met with great opposition. Dr. Hamilton and others advocated the doctrine that the hæmorrhage in placenta prævia 'proceeds from the separated portion of the placenta more than from the ruptured uterine vessels.' Dr. Simpson endorsed this view to the full extent, and I suspect it is this, as much as the rule of practice itself, which has excited the opposition which has been manifested. According to this hypothesis, the blood lost in separation of the placenta flows from the placental cells, the supply to these cells being kept up by vessels supplying the undetached portions of the placenta. It is supposed that, as the separation proceeds, the veins from the uterine surface, from which the placenta is detached, are closed so as to prevent any retrogressive hæmorrhage from the uterus."

Dr. Smith believes this theory to be altogether untenable, for there are no proofs of the escape of the great quantities of blood lost in these cases, from the placental surface; and although there is an unobstructed channel for the flow of blood from the curling arteries, through the placental cells, and the openings found upon the placental surface when this has been separated from the uterus, yet there are valid reasons why we should believe that the sudden and great gushes of blood poured out in placenta prævia do not escape in this way. The uterine arteries are of comparatively small calibre, and the openings upon the placental surface are neither large nor numerous. Supposing one half of the placenta to be detached, it is highly improbable that the profuse loss frequently met with in these cases could come from the uterine arteries entering the undetached portion of the placenta, even if they were all discharging blood simultaneoously.

Moreover, there are good reasons for believing that the uterine veins are the real sources of hæmorrhage in placenta prævia. The size of the venous openings, the valveless state of the uterine veins, the channels being unimpeded from the right auricle to the open mouths of the sinuses, furnish anatomical arguments in favour of this source for the flow of blood, which are stronger than those derived, from the anatomical arrangement of the uterine curling arteries and the placental sinuses, in favour of the opposite view. Then there are the facts connected with post-partum hæmorrhages. The only hæmorrhages comparable for suddenness and extent to the losses in placenta prævia are those which occur after labour, and subsequent to the expulsion of the placenta, in cases where it has been attached to the fundus uteri. In inversion of the uterus, after completion of delivery and the separation of the placenta, the flooding is known to be enormous. Here, then, can be no question but that the hæmorrhage takes place from the open mouths of the uterine veins. For these and other reasons, detailed in the book, Dr. Smith infers that "in the hæmorrhage from placenta prævia the blood escapes in great part from the uterine surface, and not from the maternal surface of the placenta." Doubtless some blood exudes from the surface of the placenta in cases of partial separation, whether the placenta be attached to the fundus or cervix, bu the contends "that this is not the chief source of flooding in placenta prævia."

"While I thus take exception to Dr. Simpson's theory of the nature of hæmorrhage in placenta prævia," continues Dr. Smith, "I do not question the correctness of the fact upon which he lays so much stress, namely, the frequent and indeed common arrest of the hæmorrhage on the entire detachment of the placenta. Dr. Simpson's theory does not appear to me to be necessary to the explanation of this matter. In my work 'On Parturition,' I pointed out that the separation of the placenta furnishes a source of irritation which excites the uterus generally, and the muscular structure at the site of the placenta especially, to contraction, and that in this way hæmorrhage was prevented. This is probably the reason why, in twins with separate placentæ, there is frequently no hæmorrhage between the expulsion of the first placenta and the birth of the second child. It is reasonable to suppose that the same thing occurs in placenta prævia, after the separation and extraction of the placenta, in the intervals which occur between the pains. The tendency to hæmorrhage from dilatation of the orifices of the veins during the pains is corrected by the descent of the head or presenting part, and the mechanical compression of the uterine walls.

"Dr. Simpson unequivocally demonstrates that in a great number of cases recorded by various authors, both before and since the publication of his views, the placenta has been detached and the hæmorrhage arrested. There can, indeed, be no question upon this point. Those most opposed to Dr. Simpson—Dr. Robert Lee, for instance—record cases in which the hæmorrhage has ceased after the spontaneous expulsion of the placenta. The cases in which, in his most recent writings, Dr. Simpson would advise separation and extraction, are those in which the evacuation of the liquor amnii is of no avail, and when the state of the patient is such as to call for interference; but where turning or other measures of

delivery are impracticable, from rigidity, or non-development of the os and cervix uteri, or a high degree of distortion of the pelvis. He would also employ it in the case of dead, premature, or non-viable children, particularly when the uterus has contracted, or is so imperfectly developed as not to admit of turning. It is questionable if rigidity can be a valid plea for this operation, except in very rare cases. When the os uteri is sufficiently open to allow of the admission of the fingers for the purpose of separating the entire placenta, there will generally be room enough for the admission of the hand. I believe the separation and extraction of the entire placenta to be suitable for those cases in which it is attached all round the os uteri, and in which the exhaustion is so great as to render some more rapid attempt at assistance than the operation of turning imperative. In some of these cases the patients would be killed by turning, if the hæmorrhage were going on simultaneously with the operation.

"The extraction of the placenta offers a means of arresting hæmorrhage, and after a short rest the patient may be sufficiently rallied to bear turning; for it must be remembered that in many of the cases in which the placenta has been extracted artificially, turning has been necessary to complete the delivery. In all cases where the child is alive and viable, delivery should be effected by turning or the forceps, as soon as possible after the extraction of the placenta, if the state of the patient is such as to bear the operation. Extraction may be sometimes useful in cases where turning is impossible, as in cases of contraction of the uterus, or great pelvic deformity, when the removal of the placenta may arrest hæmorrhage and facilitate the operations of turning, craniotomy, or evisceration. It may also be practised in some cases of dead or premature children, when the hæmorrhage is going on, and turning is difficult from any cause. When the flooding is not profuse, and when the uterus is roomy and the waters undischarged, the extraction of the placenta before the child offers no advantage whatever. The whole subject has been ably treated by Dr. Chowne, and Dr. Fleetwood Churchill gives a very candid exposition of the advantages and disadvantages of the operation."

Certain statistical arguments have been advanced in favour of the operation.

"By the ordinary methods of practice, rather more than half the children are lost; and Dr. Simpson attempts to show that the mortality is scarcely more than this when the placenta was extracted before the child. He gives a table of 141 cases: of these, the child was saved in 33 cases; in 99 cases it was born dead; in 1 the child was anencephalous, and died shortly after its birth; in 28 cases the result, as regards the child, was not stated. But such a state of mortality cannot be hoped for from artificial extraction. In many of the cases of spontaneous expulsion the fœtus, membranes, and placenta, are expelled by the same pain. Dr. Simpson, as Dr. Fleetwood Churchill observes, has only recorded one case of the child being born alive when the interval after the removal of the placenta was more than ten minutes. Dr. West collected 17 cases, but in 16 of them the children were lost. If this great proportion of fœtal mortality should be preserved, it must go far to

prevent the adoption of extraction in any but the most unpromising cases.

"Dr. Barnes has entered more fully than any previous author into the subject of placenta prævia and its treatment. He believes that in placenta centralis the action of the pains detaches the placenta in concentric rings from below upwards, until the separation is carried sufficiently high to admit of the passage of the fœtal head. This point being reached, he contends that the hæmorrhage ceases, although a sufficient amount of placenta may remain attached to allow of the preservation of the child. In placenta lateralis, also, cases are met with in which no interference takes place, but in which the placenta is detached from the os uteri and from the internal surface of the uterus to a certain extent, after which there is no further hæmorrhage. Thus there is a zone or line round the lower part of the uterine cavity, above which the placenta is tolerably safe against detachment during delivery, and below which separation with hæmorrhage are inevitable. Dr. Barnes founds upon these data the principle of practice for which he contends—namely, the artificial separation of the placenta, when the os is sufficiently open, to such a distance above the os uteri as to admit of the passage of the fœtal head, and thus to save the patient from the intermittent separation and hæmorrhage produced by the pains. He would effect at once, by passing one or two fingers into the uterus, rupturing the membranes, and sweeping them round the os and cervix, what nature only does slowly and dangerously, believing that the natural contractions of the uterine tissue will prevent any dangerous effusion of blood after this operation, or that, if uterine action be wanting, it may be compensated for by internal and external stimuli, plugging the vagina, the administration of ergot, astringent injections, or the use of electricity. When the detachment of the placenta has been completed to the extent pointed out, Dr. Barnes would, as I understand him, leave the case to nature, unless special reasons for other interference should exist. Dr. Cohen, of Hamburg, has proposed, in cases of partial or lateral placenta prævia, to detach entirely the placenta from that half of the cervix to which the smaller portion of its bulk is attached, when, as he states, the placenta passes over during the pains to the side of its chief attachment, and the hæmorrhage ceases. Dr. Cohen mentions that he has, in many instances, performed this operation with invariable success as regards the mother, and that he has rarely lost a child. This method is evidently an ingenious modification of that proposed by Dr. Barnes. As regards the use of astringents, Dr. Barnes recommends the sesquichloride of iron, or a pared lemon, but I would suggest the use of alum and iron as a most powerful astringent. In the application of pressure, an inflated air pessary of sufficient size would be more effective than any other kind of plugging. As a summary of the whole of this important subject, it may be stated that—

"In turning we have the great advantage of controlling the duration of labour, and in the performance of the operation the hand and arm of the accoucheur, and subsequently the part of the child brought down, plug the cervix uteri very efficiently. I believe also that except in cases of limited attachment of the placenta at the os uteri, the chances of saving the child is as great as by any other method. The risk to the

mother from the operation, unless in extreme cases, is very slight. Turning cannot, however, be practised until the os uteri is dilated to a certain extent, up to which time plugging must be depended upon if we determine to turn. Cases are also sometimes met with in which the exhaustion of the patient is so extreme as to forbid the operation.

"In separation and extraction of the placenta we have the means of arresting the flooding when the mother is too weak to admit of turning. Hæmorrhage does not, however, invariably cease on the extraction of the placenta, and by this procedure the life of the child is almost certainly sacrificed. The best cases for its performance are those in which dangerous exhaustion exists, or when the child is already dead.

"In partial detachment of the placenta there is a fair chance of saving both mother and child in favorable cases. But although I give its full value to the principle enunciated by Dr. Barnes, it must in practice be difficult to know, in individual cases, at what point of detachment the hæmorrhage is certain to cease altogether, it being the great feature of hæmorrhage in placenta prævia that it suddenly ceases and as suddenly recurs. I should myself prefer to combine turning with the mode of practice advocated by Dr. Barnes."

A Treatise on the employment of the Speculum in the diagnosis and treatment of uterine diseases, with 300 cases. By ROBERT LEE, M.D., F.R.S., Obstetric Physician to St. George's Hospital, &c. (London, Churchill, 8vo, pp. 132, 1857.)

This book is a reprint of a paper which was presented to the Royal Medical and Chirurgical Society, and which was noticed in our pages at the time of its appearance. It is issued "with the hope that it may contribute in some degree to the correction of those erroneous and pernicious doctrines respecting the diseases of the uterus which have recently been introduced into England from foreign countries; and, if possible, to curb the licentious use of the speculum." A proper title would have been, Anti-speculum; or, a Treatise against the use of the Speculum.

Illustrations of the reciprocal sympathies between the Uterus and Bladder. By W. F. MONTGOMERY, M.D., late Professor of Midwifery in the School of Physic in Ireland. ('Dublin Hospital Gazette,' Dec. 1, 1857.)

"It is familiar to us all," says Dr. Montgomery in a paper read before the Medical Associates of the College of Physicians in Ireland, November 4th, 1857, "that in the human female there is an intimate reciprocal sympathy between the uterus and bladder, and other parts of the urinary apparatus; so that, under a variety of circumstances, when the former organ is the seat of any anomalous action, or brought into a state of exalted sensibility, whether from natural or morbid causes, the latter is not only liable, but very apt to sympathise, and suffer correspondingly.

"This is constantly exemplified in the increased urinary irritation so often accompanying ordinary healthy menstruation, and still more remarkably, when the latter function happens to be painfully performed. Again, in early pregnancy, the same thing is observed; and the remark is trite, that morbid actions in the uterus, whether benign or otherwise, often have the earliest announcement of their invasion, in symptoms of disturbance first noticed in the functions of the bladder.

"Thus, congestion or slight ulceration of the cervix uteri, and still more strikingly, malignant affections of that part, frequently excite, in the first instance, in the patient's mind, only apprehensions of gravel, or some vesical disease, for which alone she is induced to seek advice; but woe betide us, in this and many other circumstances, if we let ourselves be beguiled into the belief that because a particular organ or locality is affected with certain anomalous symptoms, it is therefore the seat of some disease, of which these symptoms are to be taken as indications; and so prescribe. Could we, for instance, expect to cure the itching of the nose and angle of the eye which accompanies the presence of intestinal worms, by applications to the Schneiderian, or conjunctival membrane.

"Mrs. C— had, for a long time, intense, intolerable, distracting itching of the perinæum and anus, which really rendered her life miserable, and for which, she had consulted many, and used a multiplicity of remedies; many of them, no doubt, very appropriate for *pruritus*, but *not for her*. When she came under my care, I also, at first, adopted the wrong course; I prescribed *for the symptom*, and *not for its cause*. But, fortunately, after seeing her a few times, something led me to suspect the existence of intestinal worms. I gave her a dose of the kousso, which caused the expulsion of some very large lumbrici, and all her troubles were forthwith at an end.

"Mrs. M— consulted me for pruritus of the pudendum, from which she suffered to such a degree, and it was accompanied with other symptoms of so distressing a kind, that she declared she loathed herself, and felt her life an intolerable burthen to her. She had used gallons of lotions, and all sorts of ointments, without the slightest relief. Examination showed an intense congestion of the cervix uteri; this was made the object of treatment, and on its removal, the pruritus and all its miserable concomitants totally ceased.

"I have already called the consent between the uterus and bladder, a reciprocal sympathy, because it equally acts in the reverse direction, irritations of the bladder being frequently found to influence and disturb the functions of the uterus—a fact which should not be forgotten in practice, and especially in the treatment of the diseases of pregnancy, when the administration of the more irritating diuretics should be avoided, lest they should excite contraction of the fibres of the uterus, and so induce premature expulsion of its contents. That they are capable of so doing is, unfortunately, popularly known, and advantage is taken of such knowledge for base and wicked purposes.

"And again, we must remember that vesical disturbances may produce a group of symptoms so closely resembling those arising from disease of the uterus, as to be mistaken for them.

"Several years ago, there occurred in this city, a case forcibly illus-

trative of this, and which excited no small sensation. The wife of a general officer, at that time holding the highest military command in this country, began to complain of distressing symptoms, having all the characters of those produced by uterine disease. Such was her own conviction, and on her consulting an accoucheur, then in large and high practice, her worst fears were confirmed; he pronounced the affection to be cancer uteri, and could only promise palliation. But she had many anxious friends, whose happy privilege it is always to hope for the best, and some of them urged upon her the necessity of having another opinion; to this, she at last consented, and the gentleman called in, pronounced the case to be one of stone in the bladder; the stone was extracted, and the lady passed at once from a state of pain and misery, to one of comfort and happiness.

"A few years since, a patient came to consult me, stating that, to gratify her friends, she had come to town for my advice, although quite aware that she could not be cured. She also handed me a written statement of her case, which set forth that she had had seven labours of terrible severity, owing to contracted pelvis, always requiring instrumental delivery; that for some months she had exhibited unequivocal symptoms of the existence of cancer uteri; and I confess, that from this account, and the woman's own description of her symptoms, I thought there was little room for doubt as to the nature of her malady. However, I, of course, gave no opinion, and suspended my judgment until I should have instituted a careful examination; on doing so, I could discover no disease of the uterus, but the neck of the bladder was distended, and felt very hard. I passed a sound into it, which at once struck against a stone of considerable size. Mr. Fleming now saw the case with me, the stone was removed, and the woman soon returned home well, and continued so.

"It is not my intention to enter into a lengthened exposition of all the details of this part of our subject, but only to ask the attention of this distinguished meeting for a few minutes, while I review as briefly as may be, some forms of disturbance of the functions of the bladder occurring at the time of labour. And I may just premise, that considering the frequency with which we witness such interchange of sympathies as we have been hitherto discussing, and their production, in many instances, from comparatively unimportant causes, we would anticipate from the close relation of juxtaposition between the uterus and bladder, and from the direct exposure of the latter organ to the powerful mechanical efforts of the uterus, as well as from the marvellous anatomical and physiological changes taking place in the latter, during pregnancy and parturition, and immediately after—we would, I say, be led to expect that the innervation and the powers of the bladder would be likely to exhibit still more marked and decided evidences of impairment, or some other abnormal condition, in the puerperal woman; and accordingly, in practice, we find that there are, at least, four forms of disturbance of the functions of the bladder, which are not unfrequently produced by parturition, even when that process is easy and natural.

"1st.—Irritability, causing an inconveniently frequent desire to discharge its contents; and this with a certain amount of pain.

"2d.—Loss of expulsive power; the natural sensibility being unaffected.

"3d.—Total loss of the natural sensibility, or irritability, which prompts to the evacuation of the contents of the organ.

"4th.—A peculiar form of hysterical retention.

"The first two of these states require little more than to be glanced at; the third and fourth demand a somewhat more particular consideration.

"1st.—The irritability of the bladder which succeeds labour, almost always, yields readily to soothing measures, such as warm anodyne fomentations, a linseed meal poultice, opiate and camphorated embrocations, an opiate suppository in the rectum, or the administration of the Mist. Camphoræ c. Magnesia, with Tincture of Hyoscyamus and Syrup of Poppy. Should there be reason for suspecting inflammation, it may be necessary to apply a few leeches, and use other appropriate remedies; but this is rarely the case.

"2d.—When the expulsive power is in abeyance, but the natural sensitive irritability remains unimpaired, the desire to evacuate the contents of the organ becomes distressingly urgent, in proportion to the amount of accumulation within it.

"This condition is sometimes produced by pressure from the uterus happening to be larger or lower than usual, perhaps displaced, or from the presence of an uterine tumour, in which case, raising up the obstacle may remove all difficulty. Sometimes, merely permitting the patient to assume the sitting position may suffice. Should these plans not succeed, the introduction of the catheter gives the desired relief.

"3d.—Again, there is the third and most important variety, in which there is no irritability, not even the natural desire to evacuate the urine, nor sensation, nor consciousness of requiring to do so, although a large accumulation is taking place, which will soon produce symptoms, not alone very distressing in themselves, but, what is worse, conditions which may lead us greatly astray, and excite groundless apprehensions of great impending danger; and it will not lighten our discomfort, should it turn out, as has often happened, that the patient owes all her annoyance to our inadvertence, or to the carelessness of the nursetender; for if we are careful in making the requisite inquiries, and give the proper directions to the nurse, and she attend to them, the accident, of which I am about to speak, *could not happen.*

"The first time I remember to have had my attention drawn to this condition was in the year 1832, and in the case of an esteemed medical friend's wife; who was delivered of her first child, after a natural labour of fifteen hours, presenting nothing unusual, if we except the most tremendous rigor I ever witnessed, which occurred shortly after delivery, and was so violent that I really thought it must have ended in convulsions; but simple means removed it, and she went on well. Before leaving her, I cautioned the nurse to encourage the lady to pass water in the course of the evening, as she had not done so for several hours; this, however, was neglected, as the lady neither expressed, nor felt any want; and, at my next visit, I found my patient very feverish, with headache; a pulse above 120; the belly tumid and tender to the touch. Before proceeding to introduce the catheter, of which she had a great

horror, I advised her trying to pass water, which she did, to the amount of at least two quarts, with instant relief to all the symptoms. Her convalescence was uninterrupted.

"At a time when there were occurring several cases of puerperal fever through town, a medical friend called on me to request that I would accompany him to visit a patient of his, who had been confined two days previously, after a severe and protracted labour. She was not going on well, and he thought he had to deal with a case of the above-mentioned formidable disease, as his patient was very feverish, had most distressing headache, a rapid pulse, with abdominal pain, swelling, and tenderness. On seeing her, I thought the presence of a large quantity of fluid was beyond doubt; a catheter was introduced, and an enormous accumulation of urine withdrawn, with immediate and decided relief to all the symptoms. It was then ascertained, that she had not passed water since her confinement, nor for many hours before it; she recovered perfectly.

"The next case occurred to me under circumstances which invested it with a very unusual interest, and caused it to make a great impression on me. I happened to be staying for a few days in a very fashionable watering-place in England, where there resided a family of great wealth and consideration in society; the eldest son of which had married a lady of large fortune and high connexion. This lady had recently been confined of her first child; and, as may be readily supposed, the attendance upon her had been a matter of warm ambition among the local practitioners; and the gentleman who carried off the prize was, I fancy, more envied than congratulated by his confreres.

"I met this gentleman accidentally in society, and the following morning he called on me in a state of painful agitation and distress. "I am," he said, "in a terrible dilemma, and fear I am a ruined man." He then proceeded to tell me that he had attended Mrs. — three days before; that she had rather a severe labour, and that at the end of thirty hours, finding the labour not likely to terminate by the natural efforts, the head having remained stationary for several hours, low down in the pelvis, and pressed strongly against its floor, he had delivered her with the forceps, without, as he assured me, any difficulty whatever. All then seemed well, but next day, the lady was uncomfortable, restless, feverish, and rather larger than she ought to be, and this state went on increasing until the third or fourth day, when, to his horror, the urine began to trickle away incessantly, and a slough, about the size of a sixpence, was discharged from the vagina. He at once, naturally enough, concluded that a vesical fistula was established; and I, taking his account as my guide, thought there was but little doubt that his worst apprehensions would be realised.

"At his urgent request, I accompanied him to visit the lady, whom I found with a hot skin, much headache, a very quick pulse, a very distended abdomen, which was moreover so tender that she could hardly bear it to be touched; but I distinctly ascertained the presence of fluid. On examining *per vaginam*, I could not detect by the finger any breach of surface along the anterior wall, or back of the bladder, and I suggested to Mr. — that it would be well to pass a catheter into the bladder; which, at his request, I did; and gave exit to a quantity of

urine, sufficient nearly to fill an ordinary wash-hand basin. Subsidence of the abdominal swelling immediately took place, the lady felt inexpressible relief, and from this day went on well.

"The truth was, that the bladder had been forgotten by all the parties concerned; and the patient had never passed water since her confinement, nor felt a desire to do so; until at last the bladder became so distended, that the resistance at its neck was overcome, and the urine leaked out at the front, as fast as it was pumped in from the ureters at the back; and it so happened that just as this began, a small slough had separated from the mucous membrane of the posterior wall of the vagina, which had been strongly pressed on by the head for several hours.

"4th.—Another state, not exactly ranging under any of the former kinds, seems to be of a purely nervous or hysterical character, and mixed up with a certain amount of *mauvaise honte*. The patient has a decided desire to pass water, and suffers distress from its retention; but has, at the same time, the greatest reluctance to make the necessary effort, and *positively refuses to try, if any one, even the nursetender, is present*, declaring that it would be impossible for her to succeed.

"Under those circumstances, suitable arrangements should be made by the nurse, and the patient then left by herself, for a time, during which she may succeed in accomplishing the desired object; if she does not, some anti-nervous medicine should be given, with strong assurances of its potency in removing such difficulties; let her try again during our absence, and if she has not succeeded when we come to pay our next visit, we must declare that longer delay would be unsafe, that we will wait a little while in the drawing-room, and if she does not then succeed, that we must draw off the water before we leave the house; this generally insures success.

"In many of these cases they do not succeed, because they do not make the proper effort; and this, I believe, is oftentimes, simply because they cannot, and not always because they *do not choose;* this state of nervous inability ought to meet with much tender consideration. I may observe here, that I have never met with this peculiar form of affection, except in the higher grades of society, and almost always in women of a highly sensitive nervous temperament, some of them having experienced a similar difficulty before marriage, and also under ordinary circumstances distinct from pregnancy.

"Now, is this state which I have just been attempting to describe, analogous to, or identical with another, which I have a few times met with in practice, and which may be thus described: A lady in perfect health retires to her bedroom for the night, and before lying down to rest, attempts to make water, and finds she cannot—she is much surprised—goes to bed, and perhaps falls asleep; in the morning, she is in great distress, but still unable to empty the bladder, and now her pain is so great, she is compelled to seek for assistance—the catheter is introduced, and all her trouble is at an end; or, perhaps, for several days, its use continues to be required, and then all goes on as well as ever; but, in either case, no circumstance of general ill-health, or local derangement or displacement can be discovered. The woman, in fact, is otherwise quite well.

"The year before last a married lady of a highly nervous temperament, so affected, drove six miles into town to my house, in great torture: I drew off the water, and she required no further assistance.

"Last year, I was urgently summoned to see an equally nervous maiden lady similarly situated; on laying my hand on the abdomen, I felt a tumour, as large as a melon, and as hard as a cricket ball; and per vaginam, it really, at first, suggested the idea of a fibrous tumour of the uterus, this organ being quite displaced. I introduced the catheter, drew off a large accumulation of urine, and the abdominal tumour—which was nothing more than the distended bladder—at once disappeared. The feature in this case which particularly arrested my attention was, the extraordinary hardness and the distinct outline of the abdominal tumour, which would readily have caused it to be mistaken for a solid morbid growth.

"I may here observe, that in the well-known case of the virgin mock prophetess, Joanna Southcot, there was felt, by competent judges, a circumscribed tumour in the abdomen, which was supposed to be the gravid uterus. Dr. Reece, in his published history of the case, says, 'In that part occupied by the womb, there was a firm circumscribed tumour as large as a man's head, bearing the shape of the womb; I have no doubt of its being an enlargement of that organ.' But when she died, no tumour existed, and that which was felt during life was attributed to the prophetess having learned to retain the urine until the bladder became considerably distended; which seems highly probable.

"In my case last related, it was necessary to relieve the lady every day for a week; when she perfectly regained the power of micturition. I may just mention, that the remedy which seemed to remove her inability was the ergot of rye; did it do so by stimulating the fibres of the uterus in the first instance, and then, by consent, those of the bladder? Perhaps so; but as the same agent has produced a similar effect in men, a direct influence may be equally admitted."

On the action of Galvanism upon the contractile structures of the gravid uterus, and its remedial power in obstetric practice. By F. W. Mackenzie, M.D. ('Proceedings of the Royal Medical and Chirurgical Society,' February 23, 1858.)

In his introductory remarks the author draws attention to the present state of professional opinion respecting the effective and remedial powers of galvanism upon the gravid uterus, and he pointed out the very different conclusions which different observers had arrived at. In this divided state of opinion, it had appeared to him that some further investigations might be usefully undertaken, and he submitted that two questions of a preliminary nature required to be decided before the agent could be satisfactorily employed in midwifery. 1st. The nature of the influence exercised by it upon the contractile structure of the gravid uterus; and, 2dly, the best mode of applying it so as to obtain the full benefit of such influence. Believing that these questions could not be satisfactorily solved by observations made exclusively upon the human female, the author had planned and instituted some experiments upon the gravid uterus of the lower animals,

in which the organ was exposed, and the exact influence exercised by it was observed. From these experiments it was shown, that galvanism exercises a remarkable and peculiar influence upon the uterine fibre; and it further appeared, after many observations, that this was most powerfully exercised when the galvanic current was directed longitudinally through the uterus from the upper portion of the spinal cord in a sustained and continuous manner. The local application of galvanism to the uterus was less effective; individual shocks produced no appreciable effect upon it, and a current directed transversely through the organ produced only a partial contraction of it in the direction of the current. Guided by the information thus obtained, the author had employed galvanism in the manner suggested by these inquiries in several very critical cases with remarkable success. The first referred to was that of a lady who had had repeated floodings in connexion with an early abortion, owing to an imperfect separation and expulsion of the ovum. In this case every available means had been tried to stimulate the uterus and control hæmorrhage without success, and the patient's condition had at length become highly critical. In this emergency a sustained current of electricity was directed longitudinally through the uterus from the upper portion of the spinal cord, and under its influence the cervix uteri became relaxed and expanded after the first application, and uterine action set in after the second, which was followed by the expulsion of an organised membrane, upon which the hæmorrhage ceased, and the patient rapidly recovered. The second was a case of placenta prævia, in which several alarming hæmorrhages had occurred before labour had commenced. In this a sustained current, applied in the manner stated for six hours, not only prevented any further hæmorrhage, but so accelerated the dilatation of the os uteri, that the hand was readily introduced, and delivery completed with safety to the patient, although the child, from the extensive separation of the placenta, was stillborn. In a third, excessive hæmorrhage had occurred in a primapara in the last month of pregnancy, and, as the placenta was felt to be attached to the cervix uteri, it was thought desirable to bring on delivery. With this view a sustained current was applied for three hours; the hæmorrhage was almost immediately arrested, and the labour had advanced so rapidly, that in a few hours afterwards it was completed by the birth of a living child. The author referred to other cases, in which he had successfully employed galvanism in obstetric practice, and, with reference to those related, submitted that they appeared to him to warrant the three following conclusions:

1. That a sustained current of electricity of moderate intensity, passed through the gravid uterus in the manner described, exercises a remarkable influence in increasing the tonicity and contractility of the uterine fibre.

2. That in such increased tonicity or contractility of the uterine fibre, so excited and sustained, we have a powerful and reliable means of moderating and controlling uterine hæmorrhage, whether of the accidental or unavoidable variety, and of simultaneously accelerating the dilatation of the os uteri and the general progress of the labour.

3. That such sustained current of electricity may be continued for a lengthened period, when the object to be attained requires it, without any appreciable pain or inconvenience to the mother or danger to the child.

In conclusion, the author briefly considered the objections which had been raised to the employment of galvanism in obstetric practice, and pointed out some fallacies, as he believed, in the conclusions which had been arrived at by Dr. Simpson.

IV.

REPORT ON PHYSIOLOGY.

The Cause of the Coagulation of the Blood; being the Astley Cooper Prize Essay for 1856, *with additional observations and experiments, and with an Appendix, showing the bearings of the subject on Practical Medicine and Pathology.* By Benjamin Ward Richardson, M.D. (London, Churchill, 1858.)

Dr. Richardson's prize essay is a remarkable work—remarkable as well from the results made known in it, as from the methods of research employed. The whole work is a model of experimental physiological research, and the history of the discovery contained in it will fill an honorable place in the history of the inductive sciences.

Fully perceiving the truth so well set forth by Cousin, that he who neglects the history of a science, or a subject, "places himself in the position of the first inventor, and puts gratuitously against himself the same chances of error; with this difference, that the first errors having been necessary, have been useful, and are more than excusable, while the repetition of the same errors is useless for others and shameful to himself." The author first proceeds to examine the physiological history of the coagulation of the blood. Then, after examining the doctrines at present in vogue respecting the coagulation of the blood, he proceeds to recount the results of his own observations and experiments. This is the raw material out of which he has wrought his discovery.

"In the course of my inquiries into the causes of the coagulation of the blood, I have observed with special care the condition of that fluid after death in five hundred and forty-three cases, occurring either in man or in inferior animals. In these cases the forms of death have varied widely. In the human subject they have included deaths from sudden syncope, epilepsy, apoplexy, enteritis, croup, pneumonia, bronchitis, bronchorrhœa, phthisis, mesenteric disease, purpura, acute rheumatism, dropsy following scarlet fever, cyanosis, hæmoptysis, failure of the heart from fatty change, cancer (the epithelial and medullary forms), aneurism of the aorta, atheromatous and ossific disease of the aorta, adhesion and ossification of the pericardium, simple starvation, cirrhosis, degeneration of the heart from drunkenness, hydrocephalus, lateral compression of the chest, ulceration and stricture of the œsophagus, icterus, general dropsy from mitral disease, dilatation of the right side of the heart, senile decay, and hanging. In the human fœtus, I have examined the

state of the blood in the sixth, seventh, eighth, and ninth months of development; as well as in cases where death has occurred, at or soon after delivery, from extravasation of blood on the brain, from syphilis, from mere premature birth, from atrophy arising from disease of the placenta, and from mechanical injury to the head during labour.

"In various inferior animals, including pigs, sheep, oxen, dogs, cats, rabbits, guinea-pigs, and birds, I have observed the blood after death from the following causes: hæmorrhage, intestinal obstruction, poisoning by narcotic gases (viz., chloroform, ether, smoke of puff-ball, carbonic acid, tobacco smoke, antimonuretted hydrogen, and prussic acid), poisoning by solid opium, by salts of ammonia and potassa, and by antimony; strangulation, both rapid and slow, drowning, electric shock, simple exposure to cold, peritoneal dropsy naturally and artificially produced, shock from blows on the head, extraction of the kidney, inhalation of oxygen, and inhalation of chlorine.

"I have also examined the blood in various stages of development, in the fœtal pig, lamb, and dog."

Dr. Richardson first details his own observations and deductions on the condition of the blood in the body under various physiological and pathological states. These observations refer to the normal coagulation of the blood in the body; to the separation of the fibrin within the body; to the semi-coagulated state of the blood produced by the inhalation of narcotic vapours, by the effects of cold, electricity, strangulation, &c.; to fœtal blood; and to the absolute fluidity of the blood. The following are the deductions which he derives from his observations:

"1. That in cases of immediately sudden death (death by electricity excepted), the blood coagulates, as a general rule, with moderate firmness; and in the ordinary mode, that is, by separating into two parts —simple red clot and serum: but that this process is quickened or delayed according as the circulatory canals are opened early, or left unopened.

"2. That in states of the body in which the blood is superfibrinised, either from active hyperinosis, or from relative increase of fibrin, there is often a modified form of coagulation, consisting of a separation of blood into three parts; viz., *fibrin* isolated, *blood-corpuscles* isolated or mixed up and held together by fibrin, and *serum*.

"3. That in instances where life is destroyed by gradual arrest of respiration, the phenomenon of coagulation is only feebly exhibited; and that the same law obtains in cases where death is induced by electricity, sudden exposure to intense heat or cold, the narcotics, and the alkalines.

"4. That an enfeebled movement of the blood in any part of the circulatory system is favorable to coagulation, and this especially if the respiration continue free.

"5. That by throwing into the circulation a large quantity of water, the process of coagulation may be prevented. That antimony produces a similar effect in many cases; that the like result may follow death from certain natural causes, as from cyanosis; and that the same effect has been observed by various authors to follow deaths from poisoning by

phosphorus, arsenic, and amylene; as well as deaths from cholera, yellow fever, typhus, and uræmia.

"6. That the cause of imperfect coagulability of blood would appear to be due to one of two causes—to a positive deficiency in the elaboration of fibrin, or to the fact that the fibrin, being elaborated, is held in an abnormal state of solution in the liquor sanguinis.

"7. That such absence or unusual fluidity of the fibrin is attended, as a general rule, with a modification, consisting possibly of a partial solution, of the red corpuscles."

Dr. Richardson next examines the influence of physical agents upon the coagulation of the blood. The effects of temperature; of the addition of water, and of fluids of different densities, to freshly drawn blood; of exposing blood to or of excluding it from the air; and of motion, are severally examined in a series of experiments of singular interest and rare fertility of resource; and as the results of these experiments the following facts are recorded.

"1. The power of coagulation of blood is reduced in proportion as the blood is absolutely brought down in temperature. Such reduction of temperature may be carried to freezing point: the frozen blood remains uncoagulated until the application of heat; but, on the blood being thawed and exposed to a higher temperature, the progress of coagulation manifests itself. Conversely, coagulation is quickened in proportion as the blood is raised in temperature above its natural standard, near to the degree at which the albumen coagulates. If two specimens of blood, taken at the same time from the same animal, be placed in such positions as to insure an absolute difference in temperature, there is an absolute difference in the periods of coagulation.

"2. The addition of distilled water to blood, in the proportion of equal parts of each liquid, does not materially influence the period of coagulation, unless the temperature of the water added be raised to that of the blood; under which circumstances, the coagulation is quickened. The addition of distilled water in excess to blood retards coagulation; and, when carried to an extreme, causes a simple separation of fibrin in a pale flocculent or gelatinous form.

"3. The admixture of blood with fluids at or above its own density materially retards coagulation, and in some instances gives rise to the separation of fibrin in an upper layer or coat.

"4. Free exposure of blood to air quickens coagulation. The vacuum also quickens coagulation. Exclusion from air, whether in a vessel of an animal, or in an inorganic structure, retards coagulation; and when to perfect occlusion pressure is added, the retardation is sustained.

"5. Agitation of blood in the open air quickens coagulation. Motion in a closed vessel retards coagulation. Blood received into a closed circuit made up of inorganic materials, and constructed so as to imitate closely in physical effects *the* circulatory system, may be kept in motion in such circuit for a brief period without coagulating; but ultimately the fibrin is deposited on the expanded parts of the circuit."

The chemical agencies influencing the coagulation come next in the order of inquiry, and first the effects of the agents existing in the

blood, and which have the power of holding fibrin in a state of solution, are examined experimentally. The results are:

"1. That the fluidity of the blood seems essentially to depend on the fibrin being held in solution by some chemical agent.

"2. That the free fixed alkalines, soda and potassa, possess the power, in certain definite degrees, both of dissolving fibrin and of holding blood-fluid. That for holding blood permanently fluid, the proportion of either alkali must not be less than one grain to the fluid ounce, or one part in 505 by weight.

"3. That no normal blood-salt has the power of effecting the solution of fibrin, nor yet of holding blood-fluid, except when added in proportions which would be incompatible with life if introduced into the circulation."

Dr. Richardson then proceeds to the final steps of his researches, and he writes thus:

"In our preceding inquiries, physical and chemical, we have been led irresistibly to the conclusion, that motion is not sufficient to account for fluidity, nor rest for coagulation; we have seen that exposure to the air is not alone sufficient to account for coagulation, though it is a favouring circumstance; and that mere confinement from air will not of itself sustain fluidity. We have seen that contact with living tissues is not alone competent to account for fluidity; for, while coagulation occurs in the presence of a living tissue, we have also seen fluidity sustained under certain conditions in contact with inorganic materials. We have seen that temperature is not sufficient of itself to account either for fluidity on the one hand, or coagulation on the other; inasmuch as the normal temperature of the body favours the coagulation of drawn blood, and is yet combined in the body with the circulating fluid blood. We have seen in regard to the effects of chemical agents, that while fibrin is evidently held fluid by some chemical principle, it is most clear that this cannot be one of the *fixed* substances; or it would continue to sustain the fluidity of blood, whether within or without the body.

"We are thus driven, by the purest steps of exclusive reasoning, to the investigation of a new point—namely: Is the coagulation of blood dependent on the evolution of some volatile substance, under circumstances favorable to its extrication?

"The idea that the evolution of a gaseous product from the blood is the cause of coagulation, was indeed put forward, as has already been stated, by Sir Charles Scudamore and Polli, who supposed, also, that it was to the escape of carbonic acid gas that the process of coagulation is mainly due. Scudamore did not, however, prove this position, but the contrary; for he found that carbonic acid, passed through blood, had no marked effect in retarding coagulation. This important fact, however, both of them did prove: that coagulation proceeds in proportion as carbonic acid and other gases are given off—the most important observation that had been made on the subject since Hewson's remark regarding the effects of exposure to the atmosphere.

"On looking back to all that had been done, and to my own investigations, the conviction became more and more powerful that, in principle, Scudamore and Polli were right respecting the escape of some volatile

substance, however wrong they might be in detail. In this direction, indeed, all evidence points.

"In this chapter, as the details of physical experiments advanced step by step, this view of the evolution of gaseous matter advanced also so steadily and convincingly, as to become, by mere accumulation of circumstantial evidence, as near to demonstration as such evidence could bring it. Let us follow this chapter step by step, and examine to what it leads.

"*Temperature*, above the standard of the body, quickens coagulation; *cold* retards it, and carried to an extreme, altogether prevents it. *Water* at ordinary temperature added to blood, in proportion above the amount of blood used, retards coagulation, as though by retaining the volatile principle in solution for a longer time. *Fluids of greater densities* added to blood have the same effect. The *vacuum* quickens coagulation; the more intensely as the vacuum is more perfect. The same quantity of blood *exposed to air* over a wide surface, whether in thin stream or in extensive layer, coagulates more quickly than if retained in mass in a small space. Blood *occluded from air* in the vessel of an animal, or in organic tubes under cold and pressure, is prevented from coagulating. Blood *in motion in a closed* circuit, or in a vessel, has its coagulation retarded, while by agitation in the open air its coagulation is quickened.

"These facts lend irresistible evidence to the truth of the theory now before us for consideration.

"But, even with these strong arguments in its favour, the theory is far from being proved. Every effect which has been noticed might, after all, be only a coincidence. To test the truth of the theory, therefore, became a plain and necessary duty.

"In commencing an inquiry in this direction, I felt that it would be most rational and business like, not at once to examine the nature of the substances thrown off in vapour by coagulating blood, but to ascertain primarily whether that vapour itself had any influence. The result is given in the succeeding narrative.

"I fitted up a simple apparatus as follows. A Wolf's bottle, capable of holding three pounds of fluid blood, was fitted with three good corks, so as to make it quite air-tight. A bent tube was fitted into one of the corks, so as to descend nearly to the bottom of the bottle by one end, and to be inserted by the other in a smaller bottle placed near the Wolf's bottle. From the other side-opening passed also a glass tube, which merely dipped into the neck of the Wolf's bottle, and bent over so as to pass to the bottom of another small bottle, of the same size and shape as that already mentioned. The two small bottles were also securely corked; but, in addition to the tubes already named as passing to them from the Wolf's bottle, two other tubes emerged from them. When the apparatus was fitted up, it was easy, by means of a small pair of bellows attached to the long tube proceeding from one of the small bottles, to throw a current of air through the whole of the bottles. The current, commencing in the attached tube, passed to the bottom of the small bottle, ascended through one of the bent tubes into the Wolf's bottle, descended to its bottom through the long arm of the tube, then ascended out of the Wolf's bottle, passed to the bottom of the other smaller

bottle, and finally, ascending to the upper part of the smaller bottle, escaped through the open tube into the air.

"EXPERIMENT CCXC.—*Transmission of blood-vapour through blood.* —When the apparatus was quite in order, I obtained at one gush two pounds of blood from the throat of an ox. An ounce of this blood was poured into each of the smaller bottles, and the remainder into the Wolf's bottle by its middle opening, which was immediately securely closed. The whole apparatus was now accurately adjusted; and, the blood being still fluid, a gentle current of air was blown through. This current passed first through the blood in the small bottle; then through the blood in the Wolf's bottle; and finally, carrying with it the blood-vapour, into the blood in the third bottle. The result was in the highest degree striking. The blood, through which air was first passed coagulated in two minutes; that in the Wolf's bottle coagulated in three minutes; while the blood in the third bottle, which for a time received the full charge of the vapour, retained its red colour and its full fluidity for eight minutes and a half; as long, in fact, as any vapour could be sent through it. When the vapour failed, and air only began to circulate, this blood coagulated feebly, the fibrin separating and floating at the top.

"I repeated this experiment frequently, with the same general result."

From these experiments it was obvious that in the blood-vapour lay the solvent of the fibrin, and it became a task to ascertain what this solvent itself could be. Those chemical writers who spoke at all about the vapour of the blood, named as its component parts water, carbonic acid, nitrogen, and oxygen. Dr. Richardson ascertained by experiment that oxygen rather quickened than retarded coagulation, and that carbonic acid and nitrogen rather impeded the process. "The difference, however, is too slight to give either of them an importance as causes of fluidity." "At this point," writes Dr. Richardson, "I was brought to the same position as Sir Charles Scudamore; with the advantage of feeling morally sure that something remained in the rear which should be sought after" (p. 272).

In no writing had there been any reference to the possibility of ammonia being given off from newly drawn healthy blood, yet there seemed nothing objectionable to Dr. Richardson in such a view, for ammonia can be produced in the body. At any rate it was a fair subject for inquiry whether ammonia was given off from freshly drawn blood; and, if so, what influence it had on blood drawn from the body?

First, then, blood-vapour was tested by being passed over a stick dipped in dilute hydrochloric acid, but no well-known white vapour of chloride of ammonium was given off. A more delicate test was had recourse to. Blood-vapour was passed through hydrochloric acid, the acid was then "poured into a clean evaporating dish, solution of perchloride of platinum was added to it, and the mixture was carefully evaporated in the water-bath. The result was a deposit of the crystalline salt of ammonio-chloride of platinum, which was afterwards well washed in a mixture of alcohol and ether" (p. 275). The experiment was repeated again and again, with the same results. The blood of oxen and of sheep was used in the experiments.

Another test was also used, namely, the production of microscopic crystals of chloride of ammonium from blood-vapours, by means of hydrochloric acid. "If a little pure hydrochloric acid be placed in a microscope-glass and held over a solution of ammonia for a moment, and the glass be then gently warmed, a field of the microscopic crystals will be formed" (p. 276). This test was made use of by placing (due precautions being used) a microscope-glass, moistened with hydrochloric acid, above the blood of oxen, sheep, and finally of man, and in every instance the result was most decided, numerous groups of crystals of chloride of ammonium being invariably formed.

Thus, then, it was clearly ascertained that ammonia (certainly in a minute quantity only) was evolved from freshly drawn blood. "That the fact, however interesting, and however contrary to the idea that ammonia would exist in the blood and make the round of the circulation without specific purpose, might after all be a mere coincidence, like the evolution of carbonic acid. The volatile alkali might have other uses than that of holding blood-fluid. It might be a mere excrete. To dig deeper, therefore, into the question, it was necessary to change the line of inquiry, to adopt an approach to the synthetical method, and to ascertain what effect ammonia produces when added to fibrin, or when added to blood" (p. 287).

The effects of ammonia, both in the solid state and in vapour, were examined in numerous experiments, and from them we learn, that ammonia not only possesses remarkable powers, even in very small proportions, of holding blood-fluid, but further, that blood to which ammonia has been added remains but temporarily fluid; that under favoring influences, the ammonia exerts its volatile force, leaves the blood, and allows coagulation. We learn, also, that in excess the solvent effect of ammonia extends from the fibrin to the corpuscles; but that (and this is an all-important practical fact) ammonia, added in more minute quantities, possesses the power of holding the fibrin in solution without affecting the blood-corpuscles. Lastly, we learn that the same physical conditions which favour or retard natural coagulation of blood, also and in like manner favour or retard the coagulation of blood to which ammonia has been added (p. 300). This latter point is illustrated by numerous experiments.

Beyond this point Dr. Richardson rather indicates than enters into the various questions which are open for future confirmation and research—the form in which the volatile alkaline solvent exists in the blood, the absolute quantity of ammonia required to hold fibrin in solution in the blood, &c. He treats also briefly of the buffy coat of the blood, and he sums up his essay in two major and a few minor propositions.

"*First major proposition.*—The primary and essential part of the process of coagulation consists in the evolution of a volatile principle of the blood.

"*Second major proposition.*—The volatile principle thus eliminated from blood is *ammonia*, differing perhaps in formula in different classes of animals, but serving essentially the same purpose in all.

"(*a*) As a result of the evolution of the volatile solvent from newly drawn and liberated blood, the fibrin, which has previously been held

in solution in the serum by virtue of the alkalinity imparted to the ammonia, is transformed from the fluid to the solid condition; its particles, coming together, constitute with the blood-corpuscles and serum, in ordinary coagulation, the red clot; and the after separation of the serum is due to the contraction of the fibrin, by the continuance of the same process" (pp. 338-339).

We shall defer a notice of the appendix to Dr. Richardson's prize essay until a future occasion. For ourselves, we should have preferred to have seen the articles in the appendix published apart from the essay. We would, however, in conclusion, express a strong opinion that the attention of students should be directed towards this work. It is not sufficient that students should be taught a certain amount of facts and theories; they should be taught, also, how to observe and reason. We know no work which will better convey to the student a correct idea of the difficulties which attend physiological and pathological research, and the mode in which those difficulties may be overcome, than this prize essay of Dr. Richardson. We know no work which gives a more hopeful and exhilirating idea of what may be done by steady and never-faltering perseverance. The influence of a work of this kind is not confined to its positive results; such a work has an all-important weight in directing and stimulating research. While, therefore, we add our testimony to the great value of Dr. Richardson's discovery, we would direct particular attention to the value of his work as a means of tuition in the true method and character of physiological research—a subject too much neglected in our medical schools.

On the variations of the colour of Venous Blood.
By M. Claude Bernard. ('Comptes Rendus,' Jan. 25, 1858.)

The facts contained in this paper show very conclusively, that it is no longer possible to use the terms *venous blood* and *black blood* as synonymous.

In 1845, while engaged in certain experiments upon the kidney, M. Claude Bernard found that the vein proceeding from this organ contained *red blood*—blood which could not be distinguished from that contained in the accompanying artery. He found, also, that the blood was thus red while the secretion of urine was going on, and that it became black, and the whole kidney of a bluish colour, when this secretion was suspended. This was the case equally in the dog, whose urine is always acid, and in the rabbit, whose urine is strongly alkaline during digestion.

More recently, M. Claude Bernard has also ascertained that the venous blood proceeding from the submaxillary gland is the subject of similar changes—that it is red during the period of secretion, and black at other times. He exposed the excretory duct of this gland in a dog, and introduced into it a small silver tube; then he isolated the nervous twig which proceeds from the lingual nerve to the gland. In this operation the vein proceeding from the gland was also exposed.

When the process of secretion was suspended, no fluid dripped from the tube which had been inserted into the duct, and the blood passing through the vein was perfectly black; when the secretion was excited, either by passing a galvanic current through the nervous twig supplying the gland or by putting a few drops of vinegar upon the tongue, fluid dripped from the tube, and, after a few seconds, the blood in the vein became so red that it could not be distinguished from the blood passing in the corresponding artery.

It is noticed, moreover, that the reddened venous blood is more diffluent, and less disposed to coagulate (sometimes, even, it did not coagulate at all,) than the ordinary black venous blood.

On certain pathological characters of the Blood-corpuscles.
By Mr. J. P. Hennessy. ('Dublin Hospital Gazette,' Nov. 15, 1857.)

An extended series of microscopical observations has led Mr. Hennessy to two results with regard to healthy blood:

1st. That the particles in the lower part of the clot were smaller than those in the upper part, and that in the bloody serum the particles which subsided to the bottom of the vessel were smaller than those which floated at the top. In every case the redness appeared to be in an inverse proportion to the size. 2d. That after removing the greater part of the fibrine by stirring the blood with a bundle of twigs, the particles which were not disintegrated were larger and paler than usual.

With regard to inflamed blood—that is, blood drawn from a patient suffering from an inflammatory disease, or blood taken from a part of the body in a state of inflammation—Mr. Hennessy has arrived at the following results:

1st. That the particles were smaller and darker than those of healthy blood; the average size of the former being the 4500th part of an inch. 2d. That when some of these particles were exposed to the air and dried, they became larger, attaining, in general the size of healthy particles treated in a similar manner. (Mr. Hennessy exemplified this by a copious extract from his notes.) 3d. That where the blood drawn presented the buffy coat, the few particles among the meshes of fibrin in the upper part of the clot were very large compared with those at the bottom of the clot. 4th. That on shaking a vessel containing blood from which the clot with buffy coat had been removed, the particles which subsided most rapidly were found to be the smallest and darkest.

"The principal fact which may be gathered from these results is one to which I wish to direct particular attention, viz., that the particles in blood in a state of inflammation are smaller, darker, and of higher specific gravity than those of healthy blood. Regarding this change in the blood-corpuscle as one of the *propria* of inflammation, we are led at once to consider the connexion it may have with other phenomena attendant on that state. The questions arise, how far it may account for the appearance of the buffy coat? how far it may go to explain the well-known changes of temperature, colour, size, and pain? and whether it may not

also furnish some explanation of the action of certain therapeutic agents? in short, how far this molecular change may be employed as the basis for a satisfactory theory of inflammation. The immediate, or rather the concomitant physical phenomena attendant on the contraction of the blood-particles, are, a development of latent heat, an increase of colour, and an increase of specific gravity. Whatever may be the amount of heat developed, however small in each particle, the change of colour or increase of specific gravity may be, these are inevitable results of the contraction. On the other hand—and this is a point of great interest, to which I will shortly advert—when the particles are regaining their normal state, an opposite series of phenomena must be presented. Let us apply these results to the physical signs of inflammation. The development of latent heat will explain the rise of temperature. The contraction will affect the colour of an inflamed part, not only by rendering the particles darker, but by permitting them to flow into vessels from which their size had previously excluded them. In becoming smaller they will necessarily become harder, and be enabled to burst through the walls of the capillaries, which would account for the phenomena of infiltration and pain. The increase in specific gravity, and a diminution in size, are the two causes which conspire to form the buffy coat; the former causing the particles to sink more rapidly, and the later allowing them to pass through the coagulating meshes of fibrine with less chance of being obstructed."

With reference to the effect of therapeutical agents, Mr. Hennessy quoted the observations of Muller, Copeland, Wedemyer, and Hastings, &c. In corroboration of his statement that the particles became smaller, he quoted Dr. Gulliver, 'Phil. Mag.,' vol. ii, 1840, p. 526; Mr. Wharton Jones, 'Guy's Hospital Reports,' vol. xvii, p. 34; Donné, 'Journal Hebdomadaire,' No. 40, vol. vi; Professor Schultz (through the 'Lancet,' 38, 39, vol. ii, pp. 713, &c.); Dr. Kölliker, 'Mikroskopische Anatomie,' p. 253; Heller, Emmert, Barry, and others. With reference to the dilatation of the blood-particles, Mr. Hennessy quoted Mr. Wharton Jones, Dr. Currie, &c. With reference to the specific gravity, he quoted the researches of Bequerel and Rodier, Heller, M. Lebert, Dr. Polli, and Dr. Rees. With reference to the changes of temperature, he quoted Dr. Traube, 'Uber Krisen und Kritische Tage.' Dr. Roger, Sir B. Brodie, 'Physiological Researches,' p 121, Professor Dunglison, and Mr. Earle.

It has been noticed by Mr. Wharton Jones that when the inflammatory state is passing off, the particles become larger. This exactly corresponds with the well-known observations, that the decline of acute disease is marked by an abnormally low degree of temperature, even whilst the action of the heart is still keeping the circulation above the normal standard.

Mr. Hennessy stated that he was pursuing his inquiries into the microscopic differences between venous and arterial blood, but that as yet he had not arrived at any satisfactory conclusions on the subject. The difficulty of preparing specimens of venous blood was very great. He adverted, however, to observations of Prevost and Dumas, of Liebig the younger, of Dr. Davy, and of M. Beclard, with respect to the relative capacities for heat and to the relative specific

gravities of arterial and venous blood, for the purpose of suggesting an extension of the molecular theory to the phenomena of animal heat.

On the influence of some surgical affections upon Animal Heat. By M. Demarquay. ('Comptes Rendus,' No. 13, 1856.)

M. Demarquay observes that although many observations have been made upon the modifications of the temperature produced by internal diseases, with the exception of Hunter's upon inflammation, and some researches upon the effects of ligatures on large vessels, nothing has been done with respect to surgical affections. He treated upon the subject in his inaugural dissertations in 1847, and since then has continued to pay attention to it; and the present memoir is an account of some of the results of his observations.

The pyrexia following amputations and other operations is accompanied by an elevation of temperature proportioned to the amount of reaction; but when the case becomes complicated by other phenomena, as plebitis or erysipelas, the temperature may undergo notable variations. Thus, in a case of amputation of the thigh, followed by phlebitis and purulent affection, the thermometer has risen from 97° or 99° to 104° Fahr.; and although this increase may seem in itself but trifling, yet the observations of Andral and others have noted but a few degrees of elevation only even in the intensest fevers. If, however, the elevation of the general temperature is inconsiderable, this is not the case with respect to the local temperature. Thus, in phlegmon and erysipelas, comparing the condition of the affected parts with that of the healthy ones, it has been found that while the general temperature of the body may have undergone no modification, that of the affected part has undergone a notable increase, exceeding that of the neighbouring parts by from 2° to 5° C. All serious wounds which produce febrile action induce an elevation of general and local temperature, but when the membrane covering the granulations has become well organised, the temperature is then found to be like that of the surrounding parts; so that ice applied under such circumstances would abstract normal, not morbid, caloric. Experimenting upon dogs, too, the author has observed that the application of ice leads to a considerable falling of the thermometer in the case of subcutaneous wounds. The same experiments showed that a wound that had undergone such diminution in its temperature, quickly recovered this, and went beyond it, the temperature of the wound thus undergoing a series of elevations and depressions, according to the quantity of ice employed, and its degree of fusion. It is evident that such a powerful modifier requires great reserve in its employment; and most of the Paris surgeons reasonably prefer in the case of great breach of surface, tepid irrigations to these freezing applications. As to the temperature in aneurisms, MM. Demarquay and Monneret have on several occasions observed in arteriosovenous aneurisms of the lower extremity, an elevation of from 1° to $2\frac{1}{2}$° C.; but they have never observed a similar difference in the case

of such aneurism existing at the bend of the elbow. When in a limb, the subject of aneurism, the circulation has undergone no considerable disturbance, no important variation of the animal temperature is observable; but when complications, such as phlegmon, are present, an elevation of 2° may take place. After ligature of the femoral and humeral arteries, the author has found a diminution of temperature to take place, and the experiments upon animals which he has made with MM. Duméril and Lecointe demonstrate the accuracy of the assertion, that every ligature of an important artery, performed so as to avoid all injury to the veins and nerves, gives rise to a diminution of the temperature of the limb beyond the ligature. *A priori*, a considerable modification in the temperature of a limb might be expected in limbs suffering from senile gangrene; and the author has been somewhat surprised to find only a difference of $1\frac{1}{2}°$ or 2° C. between the two limbs, except in one case, when the difference amounted to 5°.

The following are the conclusions of the memoir: 1. Purulent infection and erysipelas give rise to an elevation of 2° to 3° C. 2. Circumscribed inflammations, as phlegmon or local erysipelas, give rise to an increase varying from 1° to 5°. Ice quickly gives rise to a temporary diminution, but the parts afterwards not only recover their former temperature, but exceed it. 3. A true aneurism, if the limb is healthy, gives rise to no change of temperature, but arterioso-venous aneurism, and especially in the lower extremity, increases it by 1° to $2\frac{1}{2}°$ C. 4. Hunter and his school have examined into the effects of ligature of vessels on the temperature, but have arrived at contradictory results. From my observations it follows that ligature of the artery and the vein in arterioso-venous aneurism of the lower extremity, gives rise to an elevation of temperature; while when the principal artery of a limb is alone tied, there is always a diminution of temperature. 5. In senile gangrene there is always a diminution of temperature of from 1° to 5° C. in the parts situated above the mortification.

The influence of Water-drinking upon the metamorphosis of the system. By Dr. Mosler. ('Archiv d. Vereins. f. gemeinsch. Arbeiten,' Bd. 3, 1857; and 'Medico-Chir. Rev.,' Jan., 1858.)

Mosler contributes a valuable essay, 'On the Influence of Water on the Metamorphosis of Matter,' which has gained the first prize from the *Verein für Gemeinschaftliche Arbeiten*. The author divides his researches into those made on children, those on adult females, and those on adult males: in all of them he examined the phenomena of metamorphosis—*a*, when the ingesta and the manner of living were as usual; *b*, when the water taken with the fluid articles of food was withdrawn; *c*, when various quantities of water were added to the amount of food. The water employed was pure, containing in sixteen ounces only 2·774 grains of solid substances, and 1·1036 grain carbonic acid. Abstinence from taking water led to the diminution of the secretions and excretions, principally those from the kidneys. Although the specific gravity of the urine became much increased, yet not only the quantity of water but also

the total amount of solids excreted within a certain period was considerably lessened, and most so that of the urea, after which ranks the chloride of sodium, the phosphoric and sulphuric acids. Lesser was the decrease in the excretion through the skin and lungs. The stools were more bound, the tongue rather dry, the appetite defective. Increased ingestion of water caused an acceleration of the total metamorphosis of matter, which in some instances manifested itself more through the skin than through the other organs of excretion; in most cases, however, principally through increased flow of urine containing an increased amount of solid constituents: the increase was largest as regards urea, after which follow chloride of sodium, phosphoric acid and sulphuric acid. These phenomena were accompanied by loss of weight of the body. On the days succeeding the increased ingestion of water the excretions were diminished, and the body gained weight.

On the Physiological Action of Strychnia and Brucia. By Dr. Harley, Professor of Practical Physiology in University College, London. ('Lancet,' June 7 and 14, and July 12, 1857)

The investigations of Dr. Harley upon the physiological action of strychnia and brucia are calculated to shed much light upon the mode in which muscle is affected by chemical and analogous agencies.

These investigations, which are of extreme importance in a therapeutical as well as in a physiological point of view, show very clearly that these poisons do not cause death by exhaustion, or by suffocation, arising either from closure of the glottis, or from spasm in the walls of the chest, but "by destroying the powers of the tissues and fluids of the body to absorb oxygen and give off carbonic acid." It is argued that death is not caused by exhaustion, because it cannot be supposed the system can be fatally exhausted in less than two minutes. It is proved that death is not caused by closure of the glottis, because the animal dies as speedily when its windpipe has been freely opened before the administration of the poison. It is proved, moreover, that spasm in the walls of the chest is not the cause of death, because artificial respiration can be performed without averting or even deferring the fatal issue. At the same time, the animal seems to "feel a want of oxygen," and that this is one cause of death Dr. Harley shows very plainly by the examination of its blood.

In this examination Dr. Harley uses the fresh blood of the calf. Of this blood he takes two portions, and mixing a small quantity (0·005 grammes) of strychnia with one, he ascertains the amount of oxygenabsorbed and carbonic acid given off by examining the composition of air that has been left in contact with each In each case the blood is thoroughly saturated with oxygen by shaking it with fresh quantities of air; and after this it is corked up in a graduated tube with 100 per cent. of ordinary air, and frequently agitated for the next twenty-four hours. At the end of this time, the air contained in the tube is analysed by Bunsen's method, and the following is the result arrived at:

	Composition of common Air.	Composition of Air after having been in contact with *simple blood* for 24 hours.	Composition of Air after having been in contact with *blood containing strychnine* for 24 hours.
Oxygen . . .	20·96	11·33	17·82
Carbonic Acid .	·002	5·96	2·73
Nitrogen . .	79·038	82·71	79·45
	100·000	100·00	100·00

The air, that is to say, which has been in contact with the blood containing strychnia, has more oxygen and less carbonic acid than the air which had been left in contact with simple blood; and thus it would appear, that less oxygen has been absorbed, and less carbonic acid given off by the blood containing strychnine. When brucine is used instead of strychnine, the only difference in the result is one of degree:

	Composition of common Air.	Composition of Air after having been in contact with *simple blood* for 24 hours.	Compo tion of Air after having been in contact with *blood containing brucine* for 24 hours.
Oxygen . . .	20·96	6·64	11·63
Carbonic Acid .	·002	3·47	2·34
Nitrogen . . .	79·038	89 89	86 03
	100·000	100·00	100·00

As with strychnine, therefore, so with brucine, the air which had been left in contact with the poisoned blood, in that it contains more oxygen and less carbonic acid than the air which had been left in contact with the pure blood, has absorbed less oxygen, and given off less carbonic acid than the pure blood.

Dr. Harley has also shown very conclusively that strychnine has, in addition, a direct power of destroying muscular irritability.

In one of these experiments, in which the hearts of two frogs are cut out and placed, one in distilled water, the other in a solution of acetate of strichnine, the result is, that the heart placed in distilled water goes on pulsating regularly for twenty-four hours, and that the heart which had been placed in the poisoned solution, not only ceases to beat in a few minutes (from one to five, according to the strength of the solution), but even passes into a state of rigor mortis before the other heart has lost its irritability.

In the other experiment, the hind legs of a frog are prepared after Galvani's method, and placed, one in a vessel containing distilled water, the other in a vessel containing a strong solution of acetate of strychnine. The muscles and nerves of these limbs are separately tested by galvanism, and the result is, that the muscles of the limb

immersed in simple water are seen to contract freely after the muscles of the limb immersed in the poisoned solution have passed into the state of rigor mortis.

The action of the strychnine upon the muscles, indeed, may be supposed to be in some degree analogous to the action upon the blood, for, as Dr. Harley points out, the destruction of the "irritability of the muscle may be supposed to imply the suspension of that process of absorbing oxygen and giving off carbonic acid—the so-called respiration of the muscle—which is certainly most energetic when the irritability is most marked."

At any rate, these very important facts go to show that the action of strychnia, in producing muscular contraction, is not an action of stimulation, for they show that the poison acts first of all by rendering the blood less apt to appropriate its stimulating element, oxygen, and in the second place by diminishing the irritability of the muscles.

In another place, moreover, Dr. Harley says—"many other poisons, I doubt not, exert their influence in a similar manner; for I have found that hydrocyanic acid, chloroform, nicotine, alcohol, ether, morphine, and several other narcotics, have the same power of destroying the property possessed by the organic constituents of the blood of absorbing oxygen and exhaling carbonic acid."

Observations on the poison of the Upas Antiar. By Professor KÖLLIKER. ('Proceedings of the Royal Society,' Feb. 15, 1858.)

The results of Professor Kölliker's investigations into the effects of the antiar upon frogs are the following:

"1. The antiar is a paralysing poison.

"2. It acts in the first instance and with great rapidity (in 5 to 10 minutes) upon the heart, and stops its action.

"3. The consequences of this paralysis of the heart are the cessation of the voluntary and reflex movements in the first and second hour after the introduction of the poison.

"4. The antiar paralyses in the second place the voluntary muscles.

"5. In the third place it causes the loss of excitability of the great nervous trunks.

"6. The heart and muscles of frogs poisoned with urari may be paralysed by antiar.

"7. From all this it may be deduced, that the antiar principally acts upon the muscular fibre and causes paralysis of it.

"So much for this time. My experiments with the antiar upon warm-blooded animals have only begun, and I am not yet able to draw any conclusion from them. As soon as this will be possible, I shall take the liberty to submit them to the Royal Society, together with the results of my experiments with the *upas teinté*, which poison I had also the good fortune to obtain through the kindness of Sir Benjamin Brodie and Dr. Horsfield. With regard to the antiar, I may further add, that experiments made independently, and at the same time, by my friend Dr. Sharpey with this poison, have conducted to the same results as my own."

On the injection of Urea and other substances into the Blood. By Dr. W. A. Hammond, Assistant-Surgeon United States Army. ('North American Medico-Chirurgical Review,' March, 1858.)

The principal object in undertaking the experiments detailed in this paper, is that of deciding upon the correctness of the theory advanced by Frerichs explanatory of uræmic intoxication. As is well known, this distinguished author regards the symptoms of blood poisoning, so frequently present in Bright's disease, as not directly depending upon the presence of urea in this fluid, but as being caused by its conversion, through the agency of a ferment, into carbonate of ammonia.

Frerichs performed two series of experiments, which he regards as tending to sustain his hypothesis. In the first series he injected a solution of urea into the blood of animals whose kidneys had been previously removed. In from an hour and a quarter to eight hours they became restless, and vomited. Ammonia was detected in the expired air, and simultaneously convulsions ensued. Death occurred in from two hours and a half to ten hours from the commencement of the experiment. Ammonia was found in the blood, the contents of the stomach, and in the bile and other secretions.

In the second series a solution of carbonate of ammonia was injected. Convulsions ensued almost immediately, and were quickly followed by stupor. The respiration was laboured, and the expired air was loaded with ammonia. This substance, however, gradually disappeared, and the animals recovered their senses.

Frerichs offers no explanation of the nature of the ferment which he conceives to be necessary to produce uræmic poisoning, nor does he even attempt to demonstrate its existence, except indirectly, through the experiments above cited.

While admitting the facts set forth by these experiments, Dr. Hammond differs with Frerichs in his theory. Ammonia has often been met with as a constituent of the expired air of healthy individuals. He has himself frequently detected it in such cases; it has been demonstrated to be constantly present in the blood; and Frerichs's own experiments (those of the second series) show that it was not capable of causing death even when injected directly into the circulation, and when its presence in the blood was evidenced by its being exhaled in large quantity from the lungs.

The fact that in the first series of investigations the kidneys were extirpated, while in the second the animals were unmutilated, while different substances were used in each, prevents our drawing any comparative conclusions from the results obtained.

The experiments to which the present paper relates consisted of two series. In the first the substance was injected into the blood of the sound animal; in the second the kidneys were previously extirpated. The two series were, as far as possible, alike in every other respect. The substances injected in both series were urea, urea and

vesical mucus, carbonate of ammonia, nitrate of potash, and sulphate of soda.

Dr. Hammond's conclusions are—

1st. That urea (simple and combined with vesical mucus), carbonate of ammonia and sulphate of potash, when injected into the blood-vessels of sound animals, do not cause death.

2d. That nitrate of potash, when thus introduced, is speedily fatal.

3d. That death ensues from the injection of any of the foregoing named substances into the circulation of animals whose kidneys have been previously extirpated.

4th. That in neither case does urea, when introduced directly into the circulation, undergo conversion into carbonate of ammonia.

The histology of the Supra-renal Capsules. By GEORGE HARLEY, M.D., Lecturer on Practical Physiology in University College, London. ('Proceedings of the Royal Medical and Chirurgical Society,' December 8, 1858.)

The author begins this paper by pointing out that the supra-renal capsules could not properly be said to diminish in proportionate size and activity of function with advancing years. He also exhibited several preparations of supra-renal capsules taken from individuals of different ages, to prove that their development proceeded at a certain ratio after birth. He moreover states that as they did not become proportionally more atrophied in old age than many of the other organs, it might naturally be supposed that they had a certain function to perform in adult as well as in fœtal life. Dr. Harley then calls attention to the great variety of size and shape of the supra-renal capsules throughout the vertebrata, and afterwards proceeded to point out the appearances presented to the naked eye by healthy supra-renal capsules. He denies the existence of any large cavity in the centre of the healthy human supra-renal capsule, and said that when such was found it was the result either of accidental rupture of the medullary substance, or as the effect of disease. He points out, however, the existence of a number of small sinuses in the centre of the organ. Dr. Harley says that the cortical and medullary portions of the supra-renal capsules, which are so different in colour, have equally distinct microscopical characters. The former, which constitutes the greater part of the organ, consists of a number of cells arranged in irregularly sized rows in a fibro-areolar matrix; the rows of cells appearing like a number of dark-yellow columns placed perpendicularly to the surface. The cells when examined individually are seen to be composed of a homogeneous cell-wall, filled with granules, pigment, and some fat-globules. Each cell possesses a well-marked nucleus, although it is not always visible without the employment of reagents. The easiest way to demonstrate the existence of a nucleus, the author said, was to colour the cells with carmine. When floating free in the field of the microscope the cells appear irregularly round; but when grouped together they have a somewhat polygonal form. The cells are arranged in a num-

ber of larger and smaller masses, which are placed in regular rows, and thus give rise to the columnar appearance. In some cases a column is composed of several cell-masses of different lengths, placed end to end. In others it consists almost entirely of one long cell-mass. Each column, as well as each cell-mass, is separated from the others by delicate fibrous tissue, in which are imbedded the vessels and nerves. Sometimes the cell-masses present the appearance of long tubes, enclosing a single straight row of quadrilateral cells. Each cell-mass is closed at the extremities, and is surrounded by a delicate homogeneous membrane. The dark, slate-coloured medullary substance of the supra-renal capsules has a very different structure from that just described. It is composed of a network of fibres, in the meshes of which are a number of large nucleated cells, which have been described by various writers as ganglion-corpuscles. Dr. Harley thinks, however, that these, like the cells in the cortical substance, are true secreting cells. The supra-renal capsules are very freely supplied with blood-vessels. Their course and distribution were minutely described.

The author concluded his communication by making a few remarks on the supposed function of the organ, in the course of which he observed that in the supra-renal capsules of the frog he had found blood-corpuscles in various stages of development. Each point of importance in the paper was fully illustrated by diagrams and microscopical preparations.

On the functions of the Thyroid Body. By Dr. Peter Martyn. ('Proceedings of the Royal Society,' 1858.)

After referring to the form, situation, connexions, and internal structure of the thyroid body, its large supply of blood, and its capability of sudden alterations of bulk, the author briefly adverts to the unsatisfactory explanations which have been offered as to its function, and then proceeds to state his own views, as follow :

"The upper part of the trachea, the larynx, and the passage of the fauces and mouth, constitute the organ of voice ; the two former are the essential or voicing part, as mechanicians call it, that which produces the tone. The larynx and trachea—taking a share in other functions and being associated by juxtaposition and attachment with contiguous organs—are always pervious and open for respiration ; lengthen and shorten, fall and rise with the œsophagus in deglutition, and bend and turn with the universal motions of the head and neck.

"To admit of this great mobility and flexibility, a certain structure is necessary. The larynx is a triangular box, enclosing the apparatus of the chordæ vocales; its two cartilaginous sides or alvæ, diverging from the front, are not fixed but free at the back, being completed by soft parts ; the trachea is composed of a succession of incomplete cartilaginous hoops or rings lying apart, the back and intervals being made up and the tube completed by soft membrane.

"Now the structure of a wind instrument, such as that of the human voice, requires the opposite properties. It must be rigid, tense, and inflexible. The qualities of the tone will be in exact proportion to

these properties. How then is the soft, slack and flexible vocal tube rendered thus rigid, tense and inflexible, and fit to produce pure tone? The muscles of the larynx, the thyro-hyoid and sterno-thyroid, merely raise or lower, or fix it in any position: not lying on, or being parallel to, but diverging from the vocal tube, they cannot affect the object referred to. It appears to me that the thyroid body is provided for this purpose. The act of uttering a tone or of speaking stops the return of the blood from that organ, distends and renders it tense, and from the nature of its attachment round the top of the trachea and on the free sides of the alæ of the larynx, renders them fixed, firm, and tense also. This effect is aided by the aforesaid muscles, the thyroid body being interposed and giving them more advantageous mechanical action. This tension may be in any degree, and on energetic speaking or singing, the increased size of the part and the fulness of the collateral veins may be seen. This is the reason of its large supply and free distribution of blood. An instance of the want of this tension in an instrument may be seen in the bagpipe, where the porte-vent is attached to the chanter or voicing part by a flexible joint or by leather, and the tone is in consequence squeaking and uncertain.

"Besides thus giving rigidity, firmness, and tension, to the organ of voice, the thyroid body also acts in another capacity—as a loader. In most musical instruments, loaders are used to render the vibrations slower and longer, and the tone in consequence fuller, louder and deeper. They compensate for want of size and space, and give to a small instrument, or to a small vibrating or voicing part of an instrument, the power and quality of a large one. The human organ of voice is eight inches long, and has the same power as, and better quality of tone than, the instrument that most nearly approaches it—the French horn, which is nine feet, or the 'vox humana' pipe of a moderate-sized organ, which is from four to eight feet long. This economy of size in the human organ has always been wondered at, but never, that I know, explained. Besides the thyroid body, another part, the structures of which I shall describe on another occasion, aids in this admirable economy. The nearer mechanism of human design approaches to perfection, the more it resembles similar structures in animal mechanics. The base of all stringed instruments and musical boxes is loaded: in most wind instruments the voicing part is thus loaded and strengthened, as in the organ pipe, horn, flute, clarionet, &c. The bassoon, which in its lower notes approaches the human voice, is uncertain and wheezy in tone for want of this provision.

"When the thyroid body is small and thin, the voice will be found to be small and shrill; when large, the tone will be full and sonorous; when it is morbidly enlarged, the voice will be deeper and more base; and when very large, as in bronchocele, the voice will be smothered.

"The compass of the voice is in great part produced by the raising and lowering of the larynx, the shortening and lengthening of the vocal tube. The thyroid body partakes of this motion, at the same time firmly fixing and rendering tense the parts in each position. By its change of shape, bulk, and density—flattening and thinning when the larynx is raised, enlarging and bulging when it is lowered—it aids in giving the particular tone or pitch, high and acute in the first case, full and deep

in the second; and, in like manner, by its varying shape, bulk, density, and pressure, it takes a great part in producing the wonderful qualities of modulation and expression peculiar to the human voice. In animated conversation, declamation and singing, this may be seen."

On the analysis and immediate principles of Human Excrements in disease. By Dr. MARCET, F.R.S. ('Proceedings of the Royal Medical and Chirurgical Society,' January 22, 1858.)

The object of this communication is—1. To describe an easy and very practical method of analysis to be applied to fæces in the diseased condition. 2. To show that the method of analysis in question is essentially anatomical or mechanical, and as free as possible from chemical reactions. 3. To show that in three instances of disease where the bile was prevented from flowing into the duodenum, the fæces yielded a quantity of crystallizable fatty acids (margaric and stearic acids), which immediate principles are known to be absent from healthy evacuations, except in certain cases depending on a peculiar diet. A few words may suffice for describing the analysis. The evacuations are exhausted with boiling alcohol, and the solution strained through muslin. On cooling, a precipitate or deposit occurs in the fluid, which is separated from the mother liquor by filtration. This deposit, after it has been washed with boiling alcohol, is found in healthy cases to consist of stearate and margarate, or soaps of lime and magnesia, with or without earthy phosphates—these compounds existing in the evacuations under examination in the form of immediate principles. The alcoholic washings or solution obtained from the deposit yielded, in cases of retention of bile, considerable quantities of free margaric and stearic acids. The clear original alcoholic extract being mixed with milk of lime, containing a considerable excess of water, is converted into muddy fluid, when a distinct precipitate will be noticed. After having collected this precipitate in a filter, washed it with water, and dried it on the water-bath, it is to be exhausted with a mixture of alcohol and ether. The clear extract thus obtained deposits on standing, in all healthy cases, impure crystals of excretine; a substance easily purified and prepared, perfectly colourless, by repeated crystallizations in alcohol and filtration through animal charcoal. The author had previously described the characters of excretive in communications to the Royal Society, published in the 'Philosophical Transactions' for 1856 and 1857. Diseased excrements do not always contain excretine, as it was absent in those cases referred to in the present communication, where it was searched for. The lime precipitate exhausted with alcohol and ether, is now to be mixed with water, and decomposed by means of hydrochloric acid; chloride of calcium is formed, and an insoluble substance remains floating in the liquid; this he has found very abundant in some diseased cases, and also in a few exceptional instances after a vegetable diet; it consisted of margaric and stearic acids mixed with a considerable proportion of oleic acid. Finally, by concentrating the filtrate from the lime precipitate on the water-bath, and decomposing

the residue with sulphuric acid, certain organic acids soluble in water are obtained, possessed of a very pungent odour, and whose properties have not yet been investigated; the castings of carnivorous animals yield in this stage of the analysis butyric acid, a substance not present in healthy human evacuations. It must be remembered that the animal body contains a number of organic acids forming known soluble salts with lime, and consequently the examination of the filtrate from the lime precipitate in diseased cases is not to be neglected. The above description, although necessarily most incomplete, gives a rough sketch of the processes recommended for the analysis of fæces; it has been put to the test for the examination of a very great number of human evacuations, and found to yield constant results in health; it is, therefore, perfectly adapted for the investigation of the composition of diseased excrements. Dr. Marcet now wishes to draw the attention to the circumstance that chemical reagents have been used as seldom as possible in these analyses, in order to avoid the decomposition of immediate principles or of compounds, such as they exist in the body. Alcohol and ether, with and without the application of heat, are the principal means employed. It is not impossible, however, to determine immediate principles by chemical analysis; and a remarkable instance of the aid obtained from chemistry in these investigations, is the fact, that by the analysis of the mass deposited in the original alcoholic extract of fæces on cooling, he has been able to ascertain that it contains phosphoric acid, fatty acids, lime, and magnesia, exactly in such proportions as are required for the substances to combine in the form of earthy phosphates and earthy soaps. These compounds had, therefore, previously existed in the intestines in the form of immediate principles. Dr. Marcet then gives the detail of three cases in which he carried out his examinations.

An experimental inquiry into the effect upon the Mother of poisoning the Fœtus. By Mr. W. S. Savory, Demonstrator of Anatomy at St. Bartholomew's Hospital, &c. (Pamphlet, 1858.)

Although we are in possession of absolute facts, which furnish clear and convincing evidence of the direct transmission from the mother to the fœtus, not only of certain diseases, but also of foreign substances —as camphor and oil, yet we had no conclusive facts in support of the converse proposition. However strong the argument from analogy might be, supported as it is by the record of cases of extreme interest, yet demonstrative evidence has been wanting of the direct absorption of foreign matter from the fœtus by the mother, or rather experiment has seemed to show that there was no such absorption. Mr. Savory, however, has set the question at rest, and experimental proof is no longer wanting of the direct and rapid transmission of matter from the fœtus to the mother through the blood in the placenta.

We select three experiments as fair examples of the rest.

"Experiment III.—A cat, far advanced in pregnancy, was rendered insensible by chloroform. The abdomen was opened and the uterus

exposed. It was divided at a part to which a placenta was not attached, and a vigorous fœtus extracted in its membranes, which were removed from it. It was supported on a napkin, and into the abdominal cavity about ten minims of the solution were injected. The portion of integument around the puncture was then carefully pinched up and secured by a ligature, so as to prevent the possibility of any escape of the solution. A second fœtus was then extracted and treated exactly in the same manner. Both, with the portion of the uterus, were then returned into the abdomen, which was closed with sutures.

"For ten minutes from the period of the first injection the cat lay on her side breathing tranquilly. Then slight spasms ensued in the hinder extremities; these gradually increased, and at length passed into violent and general ones. In seven minutes more the cat was dead.

"The abdomen was then re-opened, and the ligatures placed upon the punctures in the fœtuses were found still perfectly secure. Both the injected fœtuses were yet alive. Within a few minutes after they were injected they exhibited decided spasms, and these continued, for a long period after the death of the mother, frequently to recur. The other fœtuses were not affected.

"In the next experiment, the fœtuses, after being injected, were not returned into the abdomen.

"Experiment IV.—A pregnant rabbit, within a day or two of her full term, was rendered insensible by chloroform, and the uterus was exposed by the usual longitudinal incision, and protruded considerably. It was carefully divided over a fœtus, which was immediately expelled, and received on a napkin; remaining connected with the mother only by the cord. The point of the syringe was inserted through the abdominal wall, and about five minims of the solution were injected. None escaped. Five other fœtuses—all but one—were removed and injected in a similar way; from five to ten minims of the solution being thrown into each. The punctures remained dry. In one case the cord gave way. The fœtuses were all fully developed, and very vigorous. Almost immediately after the injection, decided tetanic spasms appeared in all, but each survived, and moved actively for some time after. None of the fœtuses were replaced after injection; indeed, it would have been impossible to do so, owing to their size. They were allowed to lie outside the mother, and remained connected with her only by the umbilical cords.

"At the end of fifteen minutes from the time of the first injection decided tetanic spasms appeared in the mother, and, after repeated attacks, she died rigid in three or four minutes more. During the spasms of the mother, two or three of the placentæ became detached.

"The following experiment is a still more striking one.

"Experiment V.—A large bitch, far advanced in pregnancy, was rendered insensible by chloroform. The uterus was exposed and opened to a small extent, at a spot as far as possible from the attachment of a placenta. Through this, by means of a very gentle pressure, a fœtus, enclosed in its membranes, was readily expelled. The membranes were divided, and the fœtus, now only connected by the cord, was placed in a large but shallow vessel of water, conveniently arranged, the temperature of which was about 100°—that is, as nearly as possible the tem-

perature of the fluid in which it is naturally immersed. Into the abdominal cavity of the fœtus, which was kept distant from the mother the entire length of the cord—some two or three inches—twenty minims of the solution (one grain of strychnia) were injected, the fœtus being raised from the water for that purpose. In about two minutes, the fœtus, which was vigorous and lively, exhibited decided spasms, and these continued to recur at frequent intervals.

"Another fœtus, removed in the same manner, and placed in the same water, was similarly treated, and similarly affected. In about five or six minutes a ligature was placed on each cord, and the fœtuses were separated, by dividing the cords on the fœtal side of the ligature. Little or no blood escaped from them. Three other fœtuses were subjected to the same process, and after a few minutes likewise removed. The quantity of the solution injected into each varied from twenty to twenty-five or thirty minims. Into one nearly forty minims were thrown. They all exhibited tetanic spasms, which in the majority continued, though feebly, after division of the cord. The protruded portions of the uterus, which still contained three or four fœtuses, and such portions of the intestines as had escaped, could be only partially replaced, owing to the contracted state of the abdominal muscles.

"The mother continued to breathe placidly under the influence of chloroform for thirty minutes from the period of the first injection, and for fifteen minues after the last fœtus had been removed. At the end of that time very slight twitchings were visible: these became more and more marked, and passed at length into a decided spasm. The spasms, preceded by twitchings, gradually increased in intensity, occurring at intervals of about two minutes. For fifteen minutes I watched some six or seven, to remove any doubt of their character, and then as the effects of the chloroform were rapidly subsiding, I did not choose to prolong the experiment further, and the dog was killed.

"In this experiment, all direct contact between the injected fœtuses and the mother was prevented. No communication whatever existed between the injected fœtus and its mother, except through the cord and placenta. It cannot be doubted that the poison passed from the blood of the fœtus to the blood of the mother at the placenta."

History of two cases of Hernia of the Ovary, in one of which there was periodical enlargement of this organ. By Dr. Oldham, Obstetric Physician to Guy's Hospital. ('Proceedings of Royal Society,' May, 1858.)

These cases are examples of a rare conformation of the female sexual organs, in which the ovaries had descended through the inguinal canal, and become permanently lodged in the upper part of the external labia. In both of them it was impossible to detect either uterus or vagina; and in the first there was a periodical increase of one or other of the ovaria, followed by its gradual reduction—a direct evidence of an ovarian menstrual act.

Case 1.—The subject of this case applied to me in September, 1851, for

advice on account of never having menstruated. She was nineteen years of age, of a tall figure, symmetrical frame, well-expanded pelvis, and womanly aspect, bearing all the marks of a full completion of the physical changes of puberty; and her general health, though not robust, was fairly good. She was one of a family of five children, and her sisters had menstruated between fifteen and sixteen years of age. The principal point which was elicited from her history in connexion with her complaint was, that, eighteen months before, a swelling had somewhat suddenly appeared on the right side of the external organs, which had caused her some pain for a few days and had then disappeared. In four or five months a similar swelling again appeared, but was attended with so much suffering that a medical man was consulted, who took it for an abscess and ordered it to be poulticed. Again it passed away, again to recur at the end of two months; and so it had gone on at irregular intervals until the time of her seeing me, when the pain of a renewed attack of unusual severity had occasioned her some alarm. On examination, a swelling the size of a goose-egg was found to extend between the external abdominal ring and the centre of the labium on the right side, which was very tense and firm to the touch; and the cellular tissue, skin, and mucous membrane of the labium were œdematous and inflamed. It was painful, but by no means so painful as a labial abscess, which in its general aspect it resembled; and there was but little febrile disturbance. A more critical examination detected the presence of a solid body of an oval shape within the tissue of the labium, which proved to be the ovarium, whose enlargement had so compressed the surrounding tissues as to swell and inflame them. On the opposite side there was another oval body, the size of a walnut, which passed just beyond the outer ring, but readily slipped into the canal. This was the left ovary in a quiescent state. The external sexual parts were normally formed; but the ostium vaginæ was closed, a slight indentation in the median line alone marking its position. Frequent careful physical examinations failed to detect any trace of a vagina or uterus, and the conclusion arrived at was that these central pelvic organs had not been developed. The mammary glands were fully formed.

I have had repeated opportunities during the six years which have intervened since first the case came before me, of examining the organs both during the periods of ovarian excitement and during the intervals. For nearly two years, however, I completely lost sight of her, when I learned to my amazement, that in spite of my strong admonition both to her mother and herself that she should lead a single life, she had married. For some time past I have seen her more frequently, and have watched the recurrence of the ovarian swellings.

For the first three years the right ovarium was exclusively enlarged, and the intervals were not so regularly marked, varying between three and six weeks: excepting for the first year, when they were much longer, occasionally extending to three months. For the last two years the left ovarium has been far more frequently affected, the right remaining quiescent; occasionally both are painful and tumid, but even then one more than the other. The intervals are now pretty regularly three weeks. The acute inflammatory symptoms which accompanied the onset of these swellings have long since ceased to recur, which is obviously due to the loose state of the tissues from repeated stretching, so that the swollen organ is no longer compressed.

The accession of a menstrual time is sometimes suddenly felt. She will go to bed well, and in the morning the ovary will be swollen: more commonly, however, it is very gradual, augmenting in volume for four days, then remain-

ing stationary for three days, and then gradually declining; the whole process, before the ovary is reduced, generally lasting ten or twelve days. On separating the ovary, when at its height of swelling, from the tissues surrounding it, it appears scarcely, if at all, less than double its usual volume; its outline is clearly defined, and it is plain that the whole, and not merely a part of the organ, is involved. There is no suffering worthy of notice during the time: the swelling is tender if pressed; and tender, too, in the act of sitting down or rising up; but she walks about as usual without distress, and there is but little lumbar or hypogastric pain. Neither are there any manifest sympathies excited, either of the mammary glands or other organs. Nor is there any vicarious flux, either of blood or any secretion, with the exception of an excess of saliva, but this is not in any large flow. The ovary alone appeared to be engaged in this periodical act, which it is not too much to suppose, in accordance with modern physiological views, would have been attended with a flux of blood, had not the organs which normally supply it been absent.

But while this may be said to represent the usual course of a period, yet the volume of the ovary, and the length of time it remains swollen, is subject to occasional variation; sometimes being much less tumid, and dying away in a shorter time.

The repeated attempts at sexual union have only had the effect of somewhat looseniug the tissues around the vulva, but the vagina remains imperforate as before, and is beyond the reach of surgical remedy. It may be added, that the subject of this history recognises an increase of sexual feeling at and soon after the periods of enlargement of the ovary.

Case 2.—This case was that of a young woman who had attained the age of twenty without having menstruated. She was a tall, strumous-looking person, in weak health. There had not been any well-marked efforts at menstruation, but she had suffered slightly from lumbar pain. The mammæ were well developed. The pelvis was fairly formed. On examination I found the two ovaria just appearing beyond the external abdominal rings, and readily returning by pressure into their respective inguinal canals. They were of equal size and similar shape, being ovoid bodies about the size of small chestnuts. They were not tender when touched, although organically sensitive, and she had never experienced pain in them. The external sexual organs were somewhat less perfectly developed than usual; the vaginal orifice was closed, and no trace of a canal or uterus could be detected by exploration with a catheter in the bladder and the finger in the rectum. These organs, as in the former case, were absent. During the time I saw the patient, which was only for two months, the ovaria did not enlarge, although her general health improved.

On the immediate principles of Human Excrements in the healthy state. By Dr. Marcet, Assistant-Physician to the Westminster Hospital. ('Proceedings of Royal Society,' 1858.)

The new results obtained by Dr. Marcet are the following:

"1. *Margarate of lime, phosphate of lime, and margarate of magnesia*, are discovered to be immediate principles of human evacuations.

"2. I find a new method for obtaining excretine, and its chemical formula has been established.

"3. The fact that vegetable food induces the presence of margaric acid in excrements has been confirmed.

"4. The existence of a comparatively large quantity of cholesterine in the spleen, which I had mentioned before as probable, has been confirmed.

"When human fæces are exhausted with boiling alcohol, the fluid being rapidly strained through a cloth, a clear extract is obtained, which, in cooling, yields a deposit; this substance being collected on a filter, is partly soluble in boiling alcohol, and there remains undissolved a residue insoluble in ether and alcohol. The residue in question being boiled with a solution of potash, dissolves almost entirely, and the addition of hydrochloric acid induces the formation of a precipitate in the solution. On examining this precipitate, it was found to consist of a crystallizable substance, fusing at 60° cent.; its structure and other properties were precisely those of *margaric acid.*

"The acid filtrate contained *phosphoric acid* and *lime.* From several quantitative analyses, I concluded that there was more lime than is required to combine with the phosphoric acid in the form of the neutral phosphate, the excess of lime being exactly that which was necessary to convert the margaric acid into a neutral margarate of lime, $C_{34}H_{33} + O_3CaO$. Consequently it followed that the three substances existed in the form of *margarate of lime* and *phosphate of lime* as immediate principles of human fæces.

"The alcoholic filtrate from the deposit being allowed to stand for twenty-four hours, deposited another substance, of a nearly white appearance, and which proved to be *margarate of magnesia.*

"The peculiar action of a vegetable diet on human fæces was investigated by means of experiments undertaken upon myself, when I observed that an entirely vegetable diet was attended with the formation of a large quantity of margaric acid in the excrements,—most probably not in the form of a margarate, but in the free state, inasmuch as it was obtained from the decomposition, with hydrochloric acid, of the precipitate induced by adding milk of lime to the cold and clear alcoholic extract of fæces, after the separation of the above-described deposits.

"In the month of December, 1855, I had an opportunity of noticing that during a cold night, when the temperature falls below the freezing point, *excretine* crystallizes readily and in large quantity in the clear alcoholic extract of fæces; this method I employed as often as possible, to prepare enough excretine for its chemical analysis; but the cold weather not lasting long enough, and this season having been remarkably mild, I was compelled to adopt a modification of the process by milk of lime, described in my former communication.

"Having prepared a sufficient quantity of excretine, partly by the action of cold, and partly by means of milk of lime, the chemical composition of this substance was now determined. A qualitative analysis showed it to consist of carbon, hydrogen, sulphur, and oxygen; there was no water of crystallization present. Oxide of copper was employed at first for the combustion, but they were subsequently undertaken with chromate of lead, on account of the large proportion of carbon that excretine contains; no substance having been found

to combine with it, its atomic composition was calculated from the assumption that one equivalent contained one equivalent of sulphur; and the following formula was obtained:

78 eq. carbon	468
78 eq. hydrogen	78
1 eq. sulphur	16
2 eq. oxygen	16
Atomic weight of excretine	578

"In my former communication I had stated that when the tissue of the spleen is submitted to a process of analysis similar to that adopted for the extraction of excretine, a substance closely allied to cholesterine is obtained. This subject being one of great importance in a physiological point of view, I have resumed the investigation, and placed beyond doubt that this substance is really *cholesterine*. Its presence in the spleen is evidently independent of that which might exist in the blood retained by this organ after death. Is is that the spleen secretes cholesterine? This can only be determined by actual experiment; but it is very remarkable that a part of the blood which is supplied to the liver should come directly from an organ containing large quantities of a substance known to enter into the composition of the bile."

V.

REPORT ON MATERIA MEDICA AND THERAPEUTICS.

On transfusion of blood in the Horse in diseases attended with low vital action. By Mr. James Farrall, Veterinary Surgeon to the Lord Lieutenant of Ireland. ('Dublin Quarterly Journal of Medicine,' Feb., 1858.)

Mr. Farrall's remarks are of considerable interest, not only as affording additional evidence in favour of a very important but much neglected mode of treatment, but also as containing the description of a new mode of performing the operation—a mode which may supersede the syringe altogether.

"During the autumn of 1856 and spring of 1857," says Mr. Farrall, "an epidemic prevailed in and about Dublin, indeed, I believe, all over Ireland, to a greater or less extent, which at its outset presented the leading features of influenza, but of a low typhoid character; it was much more prevalent along the eastern coast than on the western or in the midland counties. In Dublin it was very fatal, and in most of the cases which I was called on to see, I found intense debility, which in some instances had come on within a few hours after the disease had first manifested itself. Horses were seen to eat their food in the morning with every appearance of health and good spirits, and before evening they were found resting against the side of their stables for support; so rapidly had debility followed the first symptoms of the disease.

"With all these cases the principal difficulty was to support the strength, watching at the same time closely the symptoms which manifested themselves as the case progressed. Sometimes the urinary organs became affected, and repeated evacuations caused the patient to sink rapidly. In others the bowels were involved, and to such an extent as to resemble bad cases of cholera in the human subject: but the worst forms of this disease that I witnessed were those in which the animals had been bled previously to my having seen them. With those cases which had not been bled, I had, in treating them, an average amount of success; but in most of those that had, I am bound to admit I was by no means so fortunate. I found that everything I could do to restore the vital powers was, in the majority of cases, useless, and, save in the instance of a few young, vigorous horses, collapse set in within a few hours after the abstraction of the blood.

"I gave a fair trial to all the usual remedies. In cases where influenza had assumed a typhoid form, and in which the leading symptoms were a feeble, thready pulse, quick and laboured breathing, cold extremities, clammy mouth, drooping eyelids, utter prostration of strength, and, in short, the usual symptoms of collapse, especially such as had been

reduced to this state by loss of blood or by excessive purgation, I was generally unsuccessful. Discouraged by repeated failures, I determined to try the effect of 'transfusion,' believing it to be a not unnatural restorative, especially in cases where the improper abstraction of blood had superinduced the symptoms above alluded to.

"To enable me, therefore, to give this operation a fair trial, I commenced a series of experiments, so as to discover the simplest, safest, and most effectual method of conveying blood from one animal into another: I first tried the transfusion syringe, which has been used by medical practitioners for this purpose; but, whether from want of skill in its use, or from defect in the instrument, which had been recommended to me as one of the best, or from some other cause, I cannot tell, but certain it is, I was in no case as successful with it as I was with a more simple apparatus. I fancied that the blood lost much of its vitality by being exposed to atmospheric air, and also by its being forced and compressed within the cylinder of the instrument. These impressions as to the cause of failure induced me to undertake several experiments with a view to the construction of an instrument which would fulfil the requisite indications, viz., to allow the blood to pass freely from the vein of the healthy into that of the diseased subject without coming in contact with the atmospheric air, and without alteration of its temperature. I at length adopted an exceedingly simple apparatus, which I can describe in a few words. It consists of an india-rubber tube of some two and a half feet long and three eighths of an inch in diameter, that is, about the caliber of the vein in the adult horse. This must first be turned inside out and carefully cleansed of all sulphur, arsenic, or other matter used in vulcanizing. To either end of this I fitted a silver tube, curved somewhat like a syphon, so that the end, which is slightly rounded at the point, might be passed easily into the vein, both tubes being exactly the same. A narrow zinc or tin trough is required to contain hot water, in which two thirds of the tube should be immersed during the time that the blood is flowing. This completes the apparatus, and, being prepared, and the horses ready, held by assistants, the jugular vein of the healthy horse, from which the supply is to be taken, is to be opened, and into it one of the silver tubes to be carefully passed, point upwards, so as to receive the current of blood as it flows back from the head; the operater holding the other end, and, having previously opened the corresponding vein in the patient, he should wait till the current is passing freely down the tube from the healthy horse, and then bring it in contact with that which is now flowing slowly from the patient; he should pass the end of the tube carefully into the vein, point downwards, by which means the possibility of any air getting into the tube is avoided. The quantity to be transfused is readily ascertained by watching the expression of the eyes, and noting the pulse carefully. So long as there is no dilatation of the pupils and so long as the heart's action is not very much affected, the blood may be allowed to flow on uninterruptedly, but as soon as the pupils become dilated, it is necessary to lessen the supply gradually, by compressing the tube with the finger and thumb. If the dilatation disappear after a minute or two, the blood may be again allowed to flow, but if the dilatation increase, you must stop, or otherwise injurious consequences will result. In the cases of two animals which I purchased for the purpose of experiment, I purposely let the blood flow after the dilata-

tion of the pupil had manifested itself, in order that I might see the result, and I found that the dilatation of the pupil increased; and in one of the cases, after winking both eyes three or four times in rapid succession, the horse reared up and fell back. In the other case, I forced the blood in from an india-rubber enema bottle; the pupils first become still more dilated, the breathing very quick and difficult, and the eyes assumed a wild, agonised look, and the animal, with a sudden bound forward, fell dead. I had my finger on the artery during the entire time, and observed a great unsteadiness and fluttering of the pulse, which increased in frequency until the instant before he fell. In the first of these cases I did not force the blood into the vein, but allowed it to flow until I perceived the injurious effects on the horse; he tottered and fell, but in a short time recovered, and was walked back to his stable; he died in the course of the night, and on examining his head, I found considerable congestion of the brain. The tube which I used will transfer about three quarts of blood in eight minutes; at least I judge so from the fact that when used as a syphon it will pass three and a half quarts of water, and a little less of oil from one vessel to another in that time.

"In one of my successful cases, phlebitis supervened both in the healthy and diseased horse. I think I am correct in saying that this disease is by no means so likely to occur in horses as in human beings, and is certainly not so formidable: but nevertheless I am quite sure that it may happen as a consequence of the operation if the instrument be not kept scrupulously clean, and also if great care be not taken in its introduction into the vein. Having, from these and other experiments not necessary to detail, determined on the mode of operating most likely to be successful, I shall now proceed to state the result of four cases in which I have operated, and which I think I may look upon as having been followed with entire success. In three of the cases the patients had been bled a short time previous to my having seen them, and were so much weakened that they could scarcely walk. In the fourth case a drastic purgative had been administered, causing super-purgation and great prostration of strength. In each of the four cases the condition of the patient was so similar that the description I have already given may answer for all. Having selected a healthy young horse from which to obtain the blood to be transfused, I opened the jugular vein in the patient and in the healthy subject, and having inserted the tube, as before described, into the vein of the healthy horse, I placed the india-rubber tube in the tin trough containing the hot water to maintain its temperature, and the other curved tube into the descending portion of the vein in the patient. As soon as the current from the healthy horse had completely expelled all atmospheric air, the instrument being thus arranged, the blood flowed freely from the vein of one horse into that of the other in an unbroken current. The average quantity of blood transferred in each of these cases was about three-quarts. I observed no particular symptoms to follow from the transfusion until two quarts or more had passed from the healthy to the diseased subject, but as soon as about this quantity had flowed into the diseased subject, there appeared to be produced an amount of stimulation indicated by an increased action of the heart; at the same time the pupils began to dilate, and the countenance evinced an anxious expression. My former

experiments led me to watch with great care the progressive dilatation of the pupil, and I deemed it expedient in each case when this symptom was well developed to compress the tube so as to diminish the current and allow the transfusion to proceed more gradually and slowly. Occasionally I almost completely interrupted the current until the subsidence of this symptom, and I found that when about three quarts had been transfused, any additional quantity was followed by unpleasant symptoms, which indicated the necessity of stopping the operation. On removing the tube and closing the vein, all symptoms of irritation gradually subsided, and the pulse, from being rapid and irritable, became slower, stronger, and fuller, gradually approaching the healthy standard.

"In each of these four cases the reaction was steady and progressive. The natural warmth of the extremities was gradually restored, and in the course of ten or twelve hours the patients presented other equally unmistakeable symptoms of amendment, such as returning appetite, more quiet and steady respiration, cheerfulness of countenance, and a willingness to move about: from this point there was a gradual improvement, and in a short time they were pronounced cured."

On the toxical and medicinal properties of the Nitrate of the Oxide of Glycyl (nitro-glycerine, or glonoine). By (1) Mr. Field, late Demonstrator of Anatomy at St. George's Hospital Medical School; (2) Dr. Fuller, Physician to St. George's Hospital; and (3) Dr. Harley, Professor of Practical Physiology at University College.

"1. In the evening of February 3d, 1858," writes Mr. Field, "I was conversing with a homœopathic practitioner, when he mentioned a medicine which possessed peculiar and extraordinary qualities, some of which he described as having affected himself, though he had taken it in very minute quantities. I laughed at his credulity, and offered to take as much as he pleased, upon which he let two drops of what he called the first dilution of glonoine fall on my tongue. After swallowing this small quantity of fluid—I was assured the quantity did not exceed two drops—I asked what effects I must expect, but was told to wait and observe for myself. I then purposely conversed on other subjects. In about three minutes I experienced a sensation of fulness in both sides of the neck, to this succeeded nausea, and I said, 'I shall be sick.' The next sensation of which I was conscious was, as if some of the same fluid was being poured down my throat, and then succeeded a few moments of uncertainty as to where I was, during which there was a loud rushing noise in my ears, like steam passing out of a tea-kettle, and a feeling of constriction around the lower part of my neck as if my coat were buttoned too tightly; my forehead was wet with perspiration, and I yawned frequently. My intellects returned, however, almost immediately, and I remember saying, 'This has nothing to do with homœopathy, but it has to do with a very powerful poison; there are more things in heaven and earth than are dreamt of in the philosophy of some of us.' I also reproached my friend for not having tested the anæsthetic power of the medicine, by inflicting a slight wound on me. I need scarcely say I am thus minute in my description of what occurred that an accurate idea may be conveyed of the actual effect produced on

me, as well as to justify the uses to which I have since put the medicine. When these sensations had passed off, which they did in a minute or so, they were succeeded by a slight headache, and dull heavy pain in the stomach, with a decided feeling of sickness, though without any apprehension that it would amount to vomiting. I lay on a sofa, feeling rather languid, but talking cheerfully, conscious at the same time that I could very well exert myself both mentally and physically, if I liked, but that it was more pleasant to be idle. This condition lasted about half an hour, at the end of which I was quite well, and walked home, a distance of half a mile, with perfect comfort. I slept soundly from one o'clock till six, when I was called up, having a slight amount of general headache, but not such as I should have regarded but for the recollection of last night's adventure.

"The physician to whom I am indebted for this overdose told me, that when his first impression that I was shamming had passed off, my condition caused him the greatest alarm, for he really thought he had killed me. I learn from him that my head fell back, my jaw dropped, I was perfectly white, breathing stertorous, and no pulse at the wrist for the space of about two minutes. He immediately rushed to a closet, and procured some stimulant, which he poured down my throat. I had never been in better health and spirits than on the day of this occurrence, and had taken nothing for hours but a little cold tea.

"This same first dilution of glonoine consists of one drop of a peculiar chemical compound, dissolved in ninety-nine drops of rectified spirit; and glonoine itself I learn to be a nitrate of oxyde of glycl, prepared by adding nitric and sulphuric acids to glycerine, the temperature of the fluids being kept down by a freezing mixture.

"My own personal experience of the very marked and peculiar effects produced by this drug made me anxious to test its qualities still further. As a direct sedative to the nervous system, without possessing any stimulating or permanently depressing qualities, without affecting secretion, together with its power of subduing muscular action, it appeared to promise to become an invaluable agent in the treatment of a large class of nervous and spasmodic diseases. By a strange perversion of all reason, as it appears to me, my friend, who is an enthusiastic disciple of Hahnemann, began to rejoice, when all appearance of danger had passed, that he had discovered what he considered a splendid remedy for apoplexy, on the principle of *similia similibus curantur*. I leave him to the enjoyment of his opinions, feeling only grateful that he did not give me a second dose to cure me on a like principle, while I consider the best mode of applying the drug in a precisely opposite direction. With this object I procured some of the first dilution of glonoine from a homœopathic chemist, and proceeded to institute a series of experiments before applying it to the treatment of disease.

"Anxious to inform myself on the effects of a smaller dose, I got a medical friend to join me. We each touched our tongue with the cork moistened with glonoine solution, and recorded the sensations produced by it. They were nearly as possible identical—a sense of constriction of the neck, slight nausea, with fulness, and some pain in the head, as if the brain were expanding. But I think my friend

must have experienced more decided effects than I did, for he declared that he would never take any more. The sensations lasted about five minutes, and then passed off without leaving any unpleasant effects.

"Animals, as far as my experiments have extended, appear to be almost unaffected by this drug, which acts so powerfully on the human organization.

"I have repeatedly given it to cats, rabbits, and other animals in doses varying from two to thirty drops without producing any immediate effect. One rabbit had diarrhœa an hour after, and the cats appeared cold and lazy all the next day. Some smaller animals, such as mice and pigeons, died after having taken the glonoine some hours, but they appeared to have suffered from alcoholic poisoning rather than from any symptoms at all resembling those produced by the glonoine on the human subject.

"Disappointed in my endeavours to gain any information from experiments on animals, I still thought I had seen and felt enough of the physiological action of the medicine to justify my cautiously employing it in the treatment of disease.

Case 1.—Mrs. L—, æt. 68, had for some days been under treatment on account of a very painful nervous affection, which she designates spasms. This recurred regularly every three hours, and is described by herself and her attendants as most distressing, and my own observation of one or two seizures fully bears out their statements. Each attack commenced suddenly with intense pain in the epigastrium, extending up to the top of the chest, and then down the inner side of the left arm; it lasted about half an hour, and then subsided, leaving her exhausted, but otherwise well in the intervals. They recurred during the night with equal regularity. She was at the same time the subject of uterine derangement. Fetid ammonia, assafœtida, chloroform, valerian, hyoscyamus, camphor, and prussic acid, with counter-irritation, having failed to give her relief, I had recourse to morphia every two hours, which relieved her only after several doses had been taken, and partial narcotism had been produced. She would then enjoy a few hours' peace; but the attacks always returned when the influence of the morphia had passed off.

Feb. 5th.—She had slept well all night from the morphia which had been taken in the previous twenty-four hours, and was awoke in the morning of this day by one of her painful attacks; but it yielded in three minutes to a quarter of a drop of the solution of glonoine in a dessert-spoonful of water. After this she had four more attacks before noon. For three attacks she took the same medicine, and was quickly relieved; but having exhausted her supply when the fourth occurred, she suffered as much as on former occasions.

My daily notes of this case are nearly a repetition of what I have just stated, till the evening of the 10th, when she appears to have taken an overdose, which produced effects very similar to those from which I suffered on the 3d. This gave rise to so much alarm, that she refused to take any more. I therefore again had recourse to the morphia; but she suffered so severely the next day and night, that she begged to be supplied with the glonoine again, and no sooner had she taken it than relief was obtained. The dose has been continued every four hours with the happiest results. Her attacks now are reduced to two or three in the twenty-four hours, and always readily yield to the quarter of a drop of solution of glonoine. The only other treat-

ment she has required has been a few ten-drop doses of the tincture of canabis indicus, to relieve uterine hæmorrhage.

Case 2.—Mrs. W— had suffered severe pain from a decayed tooth for several hours. The pain was so great, that she would gladly have had it extracted; but her dentist was anxious to preserve it. In the evening she begged me to give her something, for she said, "It cannot be made worse." I placed about half a drop of the solution of glonoine (1 per cent.) on her tongue. Soon after, she experienced a pulsation in the neck, fulness in the head, throbbing in the temples, and slight nausea. The toothache subsided, and she became partially insensible, disliking very much to be roused. When fully sensible she had headache, but the toothache was gone. Mrs. W. remarked, "Certainly that medicine allays pain wonderfully." She slept unusually well that night, and experienced no ill effects in the morning.

Case 3.—Elizabeth M—, a stout healthy young woman, had severe toothache. I was applying a very small piece of lint dipped in glonoine solution (1 per cent.), when it accidentally fell into her mouth and was swallowed. In about five minutes, after feeling giddy and sick with headache, she became insensible. Her countenance, naturally florid, was unaltered, breathing tranquil, pulse full, and rather quickened. Knowing, as I did, that she had taken but a small quantity of the drug, I kept my finger on her pulse, and allowed myself time carefully to observe her condition before applying a restorative. I tested her sensibility to pain, and called loudly to her, but without producing any impression. Directly I detected a slight failure in the pulse, in about three minutes after insensibility commenced, she had some stimulant poured down her throat, when she quickly recovered. Some headache was complained of, but the toothache was cured. The next morning she was quite well.

Case 4.—Mrs. R—, æt. 45, pale, anæmic, with feeble circulation, has for the last month suffered from headache, daily increasing in severity. When I first saw her, February 15th, she had had leeches applied to the temples, and had taken drastic purgatives, since which the pain had been much worse, and she could not sleep. I gave her a quarter drop of glonoine solution in coloured water every four hours. On seeing her the next day, she expressed the greatest gratitude for the relief the medicine had afforded her, and she said her head was much better after taking the first dose, and she slept four hours. The glonoine was of course given only as a palliative in this case, while iron and generous diet were relied on as a means of effecting a cure.

"I have not yet met with one well-defined case of neuralgic or spasmodic disease in which this medicine has failed to afford relief. No vague, over-sanguine expectations are entertained of its power to cure disease where spasm or pain are but symptoms, excepting only in those cases where these consequences themselves become the cause of death, their cause being of a transient nature, and liable to subside if the patient's life can be maintained for a certain time, such as temporary irritation of a nervous centre, or inflammation of such a part, which terminate in resolution or be subdued by remedies, if existence were prolonged sufficiently for their action; and also in cases where we may suppose symptoms such as spasm may react on their exciting cause, preventing the necessary tranquillity for recovery, the offspring, as it were, maintaining its parent. With such a remedy may we not look forward hopefully to the treatment of tetanus, hydrophobia, and other similar diseases?"

2. Dr. Fuller's investigations were undertaken in conjunction with Dr. Harley.

"Our experiments," says Dr. Fuller, "commenced at 12·45 p.m., 20th March, 1858, at which time my pulse was 80, and my respirations were eighteen in a minute. I began by taking two drops of a solution containing I drop of pure glonoine in 99 of rectified spirit—the solution employed by Mr. Field. It was sweet to the taste and warm, and imparted a flavour or odour somewhat resembling chloric ether. In the course of a minute I felt, or fancied that I felt, some fulness in the head, but was not conscious of any other unusual sensation. At 1·4 o'clock I took two drops of the solution obtained from Morson's, or in other words, one sixth of a drop of pure glonoine, which is equal to 17 drops of the solution spoken of by Mr. Field. It was very sweet, and pungently hot to the tongue and throat, giving rise to a burning sensation which lasted several minutes. At 1·6 o'clock my pulse had risen to 96, and I felt, or fancied that I felt, increased fulness about the head, but without giddiness or confusion of thought. My pupils were not affected, and I did not experience any unusual sensation beyond that just referred to. At 1·15 o'clock I took 4 more drops of Morson's solution, or in other words, one third of a drop of pure glonoine, which is equivalent to 33⅔ drops of Mr. Field's solution. At 1·18 o'clock my pulse was still 96; my respiration remained tranquil; my pupils were unaffected, and I was not conscious of any unusual sensation, except a sense of slight fulness in the head. As no further symptoms occurred, at 1·30 o'clock I swallowed six drops of Morson's solution, or in other words, half a drop of pure glonoine, which is equivalent to fifty drops of Mr. Field's solution. It was intensely hot to the mouth and gullet, rendering it necessary for me to swallow half a glass of water. I felt somewhat nervous; and for a few moments the surface of my body became covered with a clammy perspiration; my pulse intermitted occasionally, and I experienced, or fancied that I did so, an increase of fulness about the head; but my pupils remained unaltered, and in no other respect did I perceive any difference from the effects produced by the former and smaller doses. In a few minutes the nervousness passed off, and at 1·35 o'clock my pulse was 90, and regular. At 1·40 o'clock my pulse was 86, and my respirations were sixteen in a minute. At 1·50 o'clock my pulse had fallen to 80, or the standard at which it was found before the commencement of the experiments.

"Thus within the space of one hour I took rather more than one drop of pure glonoine, which is the amount contained in eighty drops of the solution spoken of by Mr. Field. This would appear conclusive as to the fact that whether in weak solution (1 in 100) as employed by the homœopathists, or in a strong solution (1 in 6) glonoine does not produce the effects which have been ascribed to it; and that, contrary to what has been stated by Gmelin and implied by Mr. Field in his recent communication, it may be taken with impunity in considerable quantity. Whether the acceleration of the pulse which was observed in the first instance was attributable to the effect of glonoine, is a question which requires further experiments to determine. My own impression is, that it was purely the effect of the nervousness or excitement resulting from the experiments in which we were engaged, for had it been otherwise it is

not probable that the pulse would have fallen to its natural standard within so short a period after taking the larger doses. The fulness in the head may have been attributable in part to the same cause, but some discomfort about the head, not amounting to headache, continued for several hours afterwards, and I cannot help thinking that it is fairly referrible to the effect of the glonoine I had taken. I will only add, that for some weeks I had been suffering from slight bronchial irritation, with frequent expectoration of thick mucus, and that since I swallowed the glonoine I have not had occasion to cough or expectorate."

3. The glonoine used by Dr. Harley was procured at a homœopathic pharmacy, and of the same strength as that used by Mr. Field.

"I began," he says, "by touching my tongue with the cork moistened with the solution; but experiencing no effect beyond that which usually follows the application of alcohol or ether to the tongue, I boldly put a couple of drops in my mouth. At first I felt a kind of sweet and burning sensation, and soon after a sense of fulness in the head, and slight tightness about the throat, without, however, any nausea or faintness. After waiting a minute or two these effects went off, and I could not help thinking that they were partially due to imagination. Determined to give the thing a fair chance, I swallowed five drops more, and as these did not cause any increased uneasiness, I took, in the course of a few minutes, other ten drops of the solution. Being at the time quite alone, I became somewhat alarmed lest I should have taken an over-dose, and very soon my pulse rose to above 100 in the minute. The fulness in the head, and constriction in the throat, I thought was more marked than after the previous dose. In a minute or two, however, my courage returned, and the pulse soon fell to 90. The fulness in the head lasted some time, and was followed by a slight head-ache. Next day I repeated the experiment upon myself by taking ten-drop doses, and finding no bad effects to result from them, I tried the substance on some of my friends, without saying what sensations might be expected to arise from it: and I may cite the following as a good example of an experiment unaffected by imagination:

"To Dr. von F., a strong, healthy gentleman, aged twenty-six, respirations twenty-eight, and pulse eighty-four in the minute, I gave ten drops of the solution. After waiting five minutes without witnessing any effect, I administered to him other eighteen drops of the glonoine in a little water. In about a quarter of an hour the pulse was noticed to be slower; this, however, was, no doubt, caused by his sitting quite still. The respirations remained as before, and neither fulness in the head, nor constriction in the throat was complained of. Upon the tongue of another gentleman (a medical man), who was equally ignorant of the contents of Mr. Field's communication, I allowed two drops of glonoine to fall; after waiting five minutes without any peculiar sensation being felt, I gave him eighteen drops of the solution, and in five minutes more, as there was still not the slightest effect observable, I again gave him other eighteen drops. The pulse and respirations were carefully watched during a quarter of an hour longer; but as absolutely nothing was either felt or observed, my friend went home. Having been thus unsuccessful in obtaining any decided effects from the employment of glonoine procured at the homœopathic pharmacy, I obtained some of the

pure substance from Mr. Morson, in Southampton-row. While standing in Mr. Morson's shop, I took by degrees a drop of the perfectly pure material, and found that, on bringing it in contact with the tongue, it at first gave rise to a sweet flavour, which was rapidly followed, however, by a most disagreeable, acrid, burning sensation. The latter lasted during several minutes. Immediately after I had taken the drop, which was equal to 100 drops of the solution previously employed, I felt my pulse, and found it 105 per minute. I imagined, too, that I felt fulness in the head, and some tightness about the throat; but as these effects gradually passed off in the course of a few minutes, I thought that they were most probably due to fear and imagination.

"On the 29th instant I made, in concert with Dr. Fuller of St. George's Hospital, some experiments with two different solutions of glonoine. One contained one drop of glonoine dissolved in ten of spirit: the other, one drop dissolved in six and three quarters of spirit. As Dr. Fuller will, in a separate letter, describe the effects produced upon himself by glonoine, I shall limit my remarks to a description of my own sensations. At 12·45, my pulse being eighty, my respirations twenty-two per minute, I took of the solution, containing one part in six and three quarters of spirit, a quantity equal to one sixth of a drop of pure glonoine, which would be equal to sixteen and a half drops of the solution used by Mr. Field. At one o'clock my pulse had risen to ninety, but the respirations were about the same. I felt some fulness in the head, and slight tightness about the throat. At 1·5 I took one third of a drop (= thirty-three drops of Field's solution). In three minutes afterwards my pulse was ninety-eight. The other effects continued as before. At 1·16 I took another half-drop, (= fifty drops of Field's solution), and in four minutes afterwards, my attention having been directed to another subject, my pulse had fallen to ninety-four. At 1·30 I took a whole drop of pure glonoine (= 100 drops of Field's solution), and in six minutes afterwards my pulse had gone up to 106 per minute. None of the other effects were increased. Ten minutes later, when I had become convinced that I ran no risk in thus rapidly augmenting the dose, my pulse fell to seventy-eight, while the respirations were eighteen per minute. I have, therefore, no hesitation in saying, that the effect upon the heart's action was entirely due to fear. The head and neck sensations, however, I think are too constant to be attributed to the same cause, although I have no doubt the imagination exaggerates them. During the three quarters of an hour that this experiment lasted, I had taken altogether a quantity of glonoine equal to 199½ drops of the solution used by Mr. Field, and of which two drops were sufficient to produce in him symptoms of narcotic poisoning.

"While Dr. Fuller was with me at University College, we gave in the course of fifteen minutes a quantity of an alcoholic solution of glonoine, equal to three drops of the pure substance, to a small sickly-looking rabbit. The animal was kept under observation for more than an hour without any effect being observed.

"To a frog we gave at 1·20 some of the solution equal to two-thirds of a drop of pure glonoine. A 1·34 he was noticed to be in a convulsion. This experiment, however, scarcely deserves to be mentioned, as it is

impossible to say whether the alcohol or the glonoine induced the tetanic state.

"Through the kindness of Mr. Spencer Wells, who gave me a quantity of pure glonoine, prepared by Mr. Squire, I was enabled to perform the following experiments. To a middle-sized dog I gave fifteen drops of the undiluted substance, and in three minutes afterwards I gave him other ten drops—in all, a quantity represented by 2500 drops of the solution employed by Mr. Field, andalthough the animal was most carefully watched during a couple of hours, no effect was detected beyond what was produced in the mouth by the acidity of the drug.

"At 11·45 I put two drops of pure glonoine into the mouth of a frog. At 12·7 he was seized with convulsions. The fore-legs were firmly clasped on his breast, and the hind-legs were stretched straight out. The slightest touch or even blowing with the breath upon him was found sufficient to induce a spasm. The tetanic state differed from that produced by strychnia, inasmuch as the spasms were of very short duration, almost instantaneous, and when the animal was left quiet recurred at regular intervals—eighteen in the minute. In about an hour and a half after the administration of the toxic substance, the frog was found flaccid, and nearly dead. When touched, however, slight spasm could still be induced.

"To another frog I gave three drops of pure glonoine, and in twelve minutes afterwards he was found convulsed. I watched him for nearly an hour, and he presented symptoms very similar to those already described as occurring in the previous case; the only difference being that he frequently croaked, and occasionally made a sort of screaming noise. I observed that the mucous membrane of the frog's mouth was somewhat inflamed by the drug.

"I may mention that the pure glonoine which Mr. Wellsgave me, as well as that got at Morson's, is an oily-looking, pale yellowish coloured liquid, soluble in alcohol and ether; and when first mixed with them yields a perfume similar to that arising from mellow apples. It is insoluble in water, in which it sinks to the bottom like chloroform. It has a sweet burning taste, is very slightly volatile, and inflammable.

"In conclusion, I have only to remark, that I have experimented upon ten different gentlemen, with glonoine obtained from four different sources, and that I have not seen any dangerous effects follow its employment when given in the before-mentioned doses, but if taken pure great caution should be used."

On the influence of Liquor Potassæ and other alkalies on the therapeutic Properties of Henbane, Belladonna, and Stramonium. By A. B. Garrod, M.D., Professor of Materia Medica in University College, London. ('Proceedings of Medical and Chirurgical Society, November 24, 1857.')

In this paper the author first alludes to the frequent exhibition of henbane with liquor potassæ, and brings forward many proofs that such combinations were often administered. He also states that the like mixtures are recommended by both medical and surgical

authors. Dr. Garrod then proceeds to detail experiments, which demonstrate beyond doubt that the active principle of henbane is destroyed by liquor potassæ and other caustic alkalies; and that such a combination is inert, both when topically applied (as evidenced by the absence of power in causing dilatation of the pupil of the eye), and also when internally administered. Similar observations are next detailed upon the preparations of stramonium and belladonna, and the results are found to be the same. It is, however, shown that the carbonates and bicarbonates of the alkalies are devoid of the property of destroying the activity of the plants. In some of Dr. Garrod's experiments as much as a drachm of the extract of henbane and an ounce and a half of the tincture were administered in combination with potash, without the production of the slightest symptom.

The results arrived at in the communication may be thus summed up—

1st. Caustic alkalies, such as exist in liquor potassæ or liquor sodæ, entirely destroy the activity of henbane, preventing its action on the pupil when topically applied, and its influence upon the system when internally administered; and, combined with a proper amount of these alkalies, the largest doses of the preparations of henbane may be given without the production of any symptoms.

2dly. The same influence is exerted by the fixed caustic alkalies upon belladonna and stramonium.

3dly. The carbonates and bicarbonates of potash and soda produce no injurious effects upon the preparations of any of the three above-named plants.

The deductions naturally to be drawn from these results are—

a. That neither liquor potassæ nor any caustic fixed alkali should be prescribed with tincture or extract of henbane, as the virtues of the latter drug are thereby completely neutralized.

b. That when it is desirable to administer an alkaline remedy with henbane, either a carbonate or bicarbonate should be selected, which would probably be equally efficacious upon the stomach, if such influence be required, and certainly as efficient in altering the condition of the urine, and the mucous membrane of the urinary passages.

c. That the same precautions should be observed with regard to belladonna and stramonium, if at any time prescribed in conjunction with alkalies.

On Cannobis Indica as a Diuretic. By Dr. J. Bryan.
('L'Union,' 22, 1857, and Schmidt's 'Jahrb.,' Bd. 94, No. 5, 1857.)

From a very short notice in our excellent German contemporary, it appears that Dr. Bryan has given the Indian hemp with evident advantage in one case of anasarca, and in two cases of general dropsy, the dose being twenty drops of the tincture every four hours. The effect was marked diuresis, with more or less diminution of the dropsical fulness. In the two cases of general dropsy, however, this marked effect was not produced until the kidney had been acted upon

by other diuretics; and therefore it is to be inferred that the hemp acted by keeping up an action already begun. The collective effects of the remedy were—improvement of the appetite, relief of pain, and improvement of the spirits. Any more special action upon the nervous system (owing, probably, to the brunt of the action falling upon the kidneys) was absent.

On the Neem, or Margosa Tree. By Mr. WARING, of the Madras Medical Service. ('Indian Annals of Medical Science,' April, 1857.)

The Neem, or Margosa tree, *Azadirachta Indica*, belongs to the Nat. Order, Meliaceæ; Linn. Syst., Decandria monogynia; and is found more or less abundantly throughout the peninsula of India.

"All parts of the tree," says Mr. Waring, "are bitter, and nauseous to the taste; this is especially noticed in the bark, the bitterness being accompanied with some astringency, which is very permanent.

"For many centuries the Neem tree has been held in the highest esteem by the natives of India, who have applied every part of it to some medicinal use: thus the bark has been regarded as an excellent tonic and anti-periodic, the seeds and the oil obtained from the pericarp (pulp) as an anthelmintic, the bark of the root as an emmenagogue; the gum, which exudes plentifully, as an aphrodisiac; and the leaves, in the form of poultice, as a valuable local application to ulcers and cutaneous affections.

"The 'Taleef Shereef'* (p. 170) contains a very lengthened account of its virtues, of which I shall content myself with a brief summary, reserving a larger space for the consideration of its virtues as observed by European practitioners. The author of the 'Taleef Shere f' states, from personal experience, that it proves most useful exhibited internally in juram (elephantiasis?), white leprosy,† cutaneous eruptions, and scabies; and he quotes the case of a man, whose whole body was white from leprosy, who in forty days was cured by its use! To old and obstinate ulcers, and to fistula in ano, the local application of the leaves (a decoction of the leaves or of the bark being given internally at the same time) is highly spoken of. The leaves heated and 'applied to swellings and boils, in some cases resolved them, in others expedited suppuration, and in all were beneficial. The addition of salt was found to aid its efficacy.' Fumigation with the decoction of the leaves proves useful, it is said, in the same way, and the water of this decoction is useful in cleansing foul ulcers, and removing pains (rheumatic) from the joints. A decoction of the bark of the root will restore suppressed menses, and if taken with goor (treacle) it will cause abortion. The seeds, bruised and applied to the head, will cure headache; their juice acts as a vermifuge; the juice of the leaf-buds introduced into the eye will cure night-blindness. Other minor virtues are enumerated, but it is not a little singular that no mention is made of the use of the bark in the treatment of fevers.

* 'The Taleef Shereef Trans.,' by George Playfair, Calcutta, 1833.

† Some information on the use of the Neem in leprosy will be found in Prof. Wilson's excellent paper on that disease, in the 'Trans. Med. Phys. Soc. Calcutta,' vol. i, p. 27, 216 N. W.

"Ainslie's account of the tree, excepting that he notices the alleged anti-periodic virtue of the bark, substantially agrees with the above; he adds a fact which I have not seen noticed elsewhere, that a sort of toddy is obtained from healthy young margosa trees, which is occasionally prescribed by the Vytians as a stomachic, in doses of an ounce and a half every morning.

"Merat and Delens * mention this tree, but their account is a mere abstract of the statements of Ainslie."

The only part of the tree analysed is the bark, and here a bitter principle, called *aradirine* by Mr. Piddington, and *margosine* by Dr. Cornish, has been isolated; but the analysis has not been repeated, and the principle has not been put to the test of practical experience.

The object of Mr. Waring's pages is to direct the attention of European practitioners to this subject, and urge them to try whether the supposed virtues are real or imaginary. At the same time, he refers to experiments already made, and more or less satisfactory—internally, in intermittent fevers, in hysteria, rheumatism, &c.; and externally, in ill-conditioned, obstinate, and sloughing ulcerations, in cutaneous affections, &c.

On the physiological effects of Alcohol and Tobacco. By Dr. William A. Hammond, Assistant-Surgeon, U. S. Army. ('American Journal of Medical Science,' October, 1856.)

In this paper Dr. Hammond gives the results of a careful series of experiments performed upon himself, in order to ascertain the action of alcohol and tobacco upon the system generally, and more especially upon the metamorphosis of tissue.

With respect to alcohol, Dr. Hammond says—"Upon consideration of the foregoing experiments collectively, I arrive at the conclusion that alcohol increases the weight of the body by retarding the metamorphosis of the old tissues, promoting the formation of new, and limiting the consumption of the fat. Viewed in detail, it is seen that, under the use of alcohol, the following effects constantly ensued: 1. The carbonic acid and aqueous vapour given off in respiration were lessened in quantity. 2. The amount of fæces was diminished. 3. The quantity of urine was reduced. 4. The urea, chlorine, and phosphoric and sulphuric acids were diminished in amount. These effects occurring when the amount of food was below the quantity required to maintain the weight of the body under the mental and physical exercise taken, were productive of no deleterious results to the system. On the contrary, when the food was sufficient to balance the waste from the excretions, and still more when an excess of aliment over the demands of the organism was ingested, the healthy working of the system was disturbed, and actual disease almost induced. The use of alcohol, even in moderation, cannot therefore be either exclusively approved or condemned. . . . . It has been assumed by several late writers that the primary action of alcohol is

* 'Dict. Mat. Med.,' vol. iv, p. 289.

the retention in the blood of the products of metamorphosis. I am inclined to think this opinion erroneous, and that alcohol, instead of preventing the elimination of the decayed tissues, acts by preventing in a great measure their primary destruction."

Dr. Hammond's experiments with tobacco led him to conclude—1st. That tobacco does not materially affect the excretion of carbonic acid through the lungs. 2dly. It lessens the amount of aqueous vapour given off in respiration. 3dly. It diminishes the amount of fæces. 4thly. It lessens the quantity of urine, and the amount of its rea and chlorine. 5thly. It increases the amount of free acid, uric acid, and phosphoric and sulphuric acids, eliminated through the kidneys. "Tobacco, when the food is sufficient to preserve the weight of the body, increases the weight; and when the food is not sufficient, and the body in consequence loses weight, tobacco restrains that loss. Unlike alcohol, this influence is unattended with any unpleasant effects upon the circulating system, though its action on the brain and nerves is not such as always to be desired. [Dr. Hammond is not an habitual smoker.] When used in greater moderation than in these experiments, this influence would doubtless be greatly lessened."

On the medicinal use of Sugar. By Dr. F. J. Behrend and Dr. Sieber. 'Journ. f. Kinderkr.' 1, 2, 1857, and Schmidt's Jahrb. No. 4 1857.'

The authors recommend the medicinal use of sugar as a curative means of great value in diarrhœa and several other affections of children, and they relate two cases of diarrhœa—one in a child aged three years, and another in a child aged four years—in which half an ounce of powdered white sugar, given every hour, soon gave a favorable turn to symptoms of extreme gravity, which had long resisted all the ordinary means of cure. Other evidence is promised, and we wait for this before forming an opinion; but we are quite prepared to agree with the authors in thinking that there are many conditions of diarrhœa, particularly those in which there is a putrefactive tendency in the alvine secretions, where sugar will in all probability prove a most valuable remedy.

On the absorption of medicated Enemata. By M. Briguet. 'Rév. de Thérap. Méd. Chir.' (January 15, 1857.)

M. Briguet's memoir was read before the Parisian Academy of Medicine on the 30th of December, 1857. It relates chiefly to quinine and its salts, and the principal conclusions are the following:

1. Enemata may readily be passed as far as the cæcum, *i. e.*, to a quarter where the powers of absorption are very active.

2. The secretions of the large intestines exert no chemical influence over the substances injected, and nothing is absorbed which was not previously in a state of solution.

3. When a solution containing *less than fifteen grains* of quinine is injected, a little more than one third of this quantity disappears by absorption.

4. When the dose of quinine is *larger than fifteen grains*, it is not well received, and not more than one fifth or even one sixth is absorbed.

5. It is very difficult to produce any cerebral symptoms by injecting quinine even in large quantity, and those symptoms are very slight.

6. Absorption is very slow in all cases, and an hour had elapsed before a trace even of the quinine had disappeared from the bowel. In very young people absorption is quicker than in adults. In very old persons there is scarcely even a trace of absorption.

7. In general, enemata containing more than thirty grains of quinine are presently expelled.

These conclusions, M. Briguet tells us, apply in a greater or less degree to all the medicinal substances employed as enemata.

On the administration of Cod-Liver Oil, and substances soluble in it, in capsules. By Mr. Spencer Wells, f.r.c.s. ('Medical Times and Gazette,' December 5, 1857.)

"I have frequently found," says Mr. Wells, "after ordering cod-liver oil, that the patients have objected very much to its unpleasant flavour. In many cases they have been quite unable to overcome their repugnance to it. In other cases the nausea it has produced had led me to discontinue it. This has been still more often the case when giving quina, or iodide of iron dissolved in the oil. Yet the effects of these solutions, when borne, have been so very beneficial that I was most anxious to overcome the objections to their use on the score of flavour. Some months ago it struck me that there was no reason why the oil should not be taken in capsules like copaiba. I accordingly asked Mr. Bastick, the druggist in Brook-street, to whom we are indebted for our knowledge of the solubility of so many substances in cod-liver oil, to have some of the oil with quina put up by Messrs. Evans and Lescher in their membrane capsules, as I had found their copaiba capsules preferable to any others I ever tried. This was done at once, and Mr. Bastick has for some time past supplied many of my patients with membraneous capsules containing cod-liver oil only or holding in solution quina, the iodide of iron, and the biniodide of mercury. Each capsule contains twenty minims of the oil, and the dose of the quina or iodide may be varied. Patients who object very much to the oil, think nothing of taking three, or even half a dozen capsules three times a day.

"The combination of biniodide of mercury with cod-liver oil is particularly useful in some of the chronic syphilitic superficial diseases of the skin and mucous membranes. A tenth or twelfth of a grain with a drachm of the oil in three capsules three times a day, I have found to answer admirably in cases of chronic pityriasis and psoriasis, with superficial ulceration of the fauces. In some of the

chronic joint affections of scrofulous subjects, the iodide of iron given in the same way, but in larger doses, is also very efficacious. When it is desired to give iron in the oil without iodine, and to give larger quantities, the wafer-paper so much used for taking the cubeb and copaiba paste answers extremely well. A paste may be made of the sesquioxide of iron—the so-called carbonate—by mixing up with it a sufficient quantity of the oil. A teaspoonful of this paste, enveloped in wetted wafer-paper, is swallowed without the least difficulty or unpleasantness by any one who can take a pill.

"In many cases of secondary syphilis in persons of broken-down constitution, it is desirable to combine the iodides of mercury and iron. In this combination the iodide of mercury becomes soluble, and it may be given either in the oil in capsules, or in the form of a very elegant syrup which Mr. Bastick prepares. In prescribing this, however, the ordinary dose of the iodide of mercury must be considerably lowered, as the action becomes much more powerful when the salt is made soluble. The syrup is prepared of various strengths; but in the proportion of a quarter of a grain of the iodide of mercury to two grains of the iodide of iron in a drachm of syrup, it will be found extremely useful, and not very disagreeable."

Some remarks on the physiological action of the Tanghinia venenifera. By Dr. Kölliker, of Wurzburg, and Dr. Pelikan, of St. Petersburg. ('Proceedings of the Royal Society,' March 16, 1858.)

The famous poison-tree of Madagascar was described for the first time by Aubert du Petit Thouars in his 'Genera Madagascarensia,' under the name of *Tanghinia venenifera*. At a later period, Sir W. Hooker published a good description, with a figure of this tree, named by him *Cerbera Tanghin* (see 'Botanical Magazine,' pl. 2968), so that nothing is wanted with regard to the botanical knowledge of this plant. On the other hand, the physiological effects of its poisonous parts have not been hitherto investigated. All we know is, that the fruit of the tanghinia is a strong poison, and is used in Madagascar as an ordeal poison in the most strange and revolting way. The only experiment on animals made by Ollivier, showed that twelve grains kill a dog in some hours, but this experiment gave no further insight into the real action of the tanghinia.

The poison used by us was the alcoholic extract of the leaves and small stems of the tanghinia, prepared from dried specimens, which Professor Pelikan had received from Count Seyderitz, of Mecklenburg. About one centigram. of this extract was sufficient to show the full effect of the poison on frogs, when introduced into a wound of the back. It acted also when given by the mouth, but in this case a somewhat larger dose was required to produce a full effect.

The observed symptoms were the following:

1. First of all, viz., in about five to fifteen minutes, the *heart* was affected and stopped in its action, in such a way that the ventricle became contracted and very small, whilst the auricles remained dilated, but were also paralysed.

2. The *voluntary* and *reflex movements* were at first not at all affected, but some time—from half an hour to one hour—after the paralysis of the heart, they became weaker and weaker, and gradually ceased totally, without any sign of spasms or tetanus.

3. In the third place, the tanghinia has a great influence upon the *voluntary muscles*, which become paralysed. This action begins very soon, and we have been able to show, with the aid of the *myographion* of Volkman, that as soon as the heart is paralysed, the muscles also begin to lose their force. Nevertheless, the total paralysis of these organs is not observed till after six hours and more, that is to say, when the muscles have been preserved in a temperature of 14° to 16° R. In a temperature of 4° to 6° R., the irritability of the poisoned muscles may last for double this time, as is usual with all poisoned muscles and nerves; but even in this case it disappears long before that of the non-affected muscles.

4. If muscles which have lost their irritability through the tanghinia are put into a solution of common salt of from $\frac{1}{2}$ to 1 per cent., their power of contraction reappears after a certain time, but only when they have been preserved at the lower temperature of 5° to 6° R.

5. Lastly, the *nerves* also are *paralysed* by the tanghinia, and, as far as we were able to pursue this question, under the same circumstances as the muscles, only perhaps a little earlier.

From all this it follows that the tanghinia is a *paralysing*, and, above all, a *muscular poison*. As far as we have been able to follow its action, it resembles very much the upas antiar, only its power would seem to be a little less strong.

On the preparation of Pepsine Lozenges. By M. Berthe. ('Bulletin Général de Thérap.,' July 15, 1857.)

M. Corvisart, who first applied pepsine to therapeutical purposes, recommends syrup of cherries as a suitable and pleasant vehicle; but unfortunately there is a reaction between the sugar and pepsine, by which in time a considerable portion of the former substance is converted into glucose and lactic acid. This has been found to be owing principally to the presence of water, and consequently M. Berthé proposes that the pepsine should be given in the dry form, as lozenges. The following is the mode of preparation he has adopted:

A firm paste is made in the usual way, with mucilage of gum arabic, and aromatized with a few drops of essence of lemon; when the mass is perfectly homogeneous, four grains of amylaceous pepsine are added for each lozenge; the mass is then divided in the ordinary manner, and the lozenges placed in a stove heated to from 77° to 86° Fahr.

Desiccation, under these circumstances, takes place very rapidly, and the lozenges obtained, which are very agreeable to the taste, do not attract moisture.

BOOKS, &c., RECEIVED.

A Sketch of the Principles and Practice of Subcutaneous Surgery, being the Oration delivered before the Medical Society of London in 1857. By W. Adams, F.R.C.S., Surgeon to the Orthopædic Hospital, &c. 8vo, Churchill, pp. 67, 1858.

Transactions of the Odontological Society of London, 1856-57. 8vo, Churchill, 1858, pp. 154.

A Treatise on the Employment of the Speculum in the Diagnosis and Treatment of Uterine Diseases, with 300 Cases. By Robert Lee, M.D., F.R.S., Obstetric Physician to St. George's Hospital. 8vo, Churchill, 1858, pp. 132.

On Squinting, Paralytic Affections of the Eye, and Certain Forms of Impaired Vision. By C. Holthouse, F.R.C.S., Surgeon to the Westminster Hospital. 12mo, Churchill, 1858, pp. 21[illegible].

On Abscess of the Brain. By Wm Gull, M.D., Assistant-Physician to Guy's Hospital. 8vo, London, 1858.

Electro-Chemistry, with Positive Results; and Notes for Enquiry in Geology and Astronomy, with a Tract of Miscellanies. By Charles Chalmers. 8vo, Churchill, 1858, pp. 100.

Notes on the Surgery of the Crimean War, with Remarks on the treatment of Gunshot Wounds. By G. H. B. Macleod, M.D., Lecturer on Military Surgery in Anderson's University, Glasgow. Post 8vo, Churchill, 1858, pp. 439.

Rheumatism; its Nature, Causes, and Cure: Gout, its Nature, Causes, Cure, and Prevention. By J. Alexander, M.D. Post 8vo, Churchill, 1858, pp. 266.

On Cough; its Causes, Varieties, and Treatment, with some practical remarks on the Stethoscope. By R. H. Semple, M.D. Post 8vo, Churchill, 1858, pp. 175.

An Essay on Wasting Palsy (Cruveilhier's Atrophy) By Wm. Roberts, M.D. 8vo, Churchill, 1858, pp. 2[illegible].

On Malformation, &c., of the Human Heart, with original cases. By Thos. B. Peacock, M.D. 8vo, Churchill, 1858, pp. 143.

The Ganglionic Nervous System; its Structure, Functions, and Diseases. By J. G. Davy, M.D. 8vo, Churchill, 1858, pp. 309.

Essays on the Secretory and Excito-Secretory System of Nerves in their relations to Pathology and Physiology. By H. F. Campbell, M.D. 8vo, Philadelphia, 1857, pp. 135.

The Institutes of Medicine. By Martyn Paine, M.D., Professor of the Institutes of Medicine, &c., in the University of New York. 8vo, New York, 1858, pp. 1095.

A Dictionary of Medical Science, containing a concise explanation of the various subjects and terms in medical science, with French and other synonyms. By Robert Dunglison, M.D., LL.D., Professor of the Institutes of Medicine in the Jefferson College, Philadelphia. Imp. 8vo, London, Trübner and Co., 1858, pp. 992.

The Enlarged Prostate; its Pathology and Treatment, &c. By H. Thompson, F.R.C.S., M.B., Assistant-Surgeon to University College Hospital. 8vo, Churchill, 1858, pp. 320.

The Cause of the Coagulation of the Blood; being the Astley Cooper Prize Essay for 1856; with additional Observations and Experiments; and with an Appendix, showing the bearings of the subject on Practical Medicine and Pathology. By Benjamin Ward Richardson, M.D. 8vo, Churchill, 1858. pp. 466.

Archives of Medicine. Edited by Lionel

Beale, M.B., F.R.S. No. 2. 8vo, Churchill, 1858, pp. 160.

Use of the Microscope in Clinical Medicine. By Lionel Beale, M.B., F.R.S. 8vo, Churchill, 1858, pp. 52.

Ophthalmic Hospital Reports. Edited by J. F. Streatfeild. No. 3. April, 1858.

Sanitary Legislation and Administration in England. By H. W. Rumsey. 8vo, Churchill, 1858, pp. 77.

On some Modern Doctrines concerning Syphilis. By L. Parker, F.R.C.S. (Pamphlet.) Longman, 1858.

On Cholera, its Causes and Prevention. By W. E. C. Nourse, F R.C.S. (Pamphlet). Churchill, 1858.

Residence at Ben-Rhydding and on the Treatment pursued there in Consumption, &c. (Pamphlet.) London, 1858, pp. 44.

Controversy on the Artificial Tympanum. By James Yearsley. (Pamphlet.) Ballière, 1858, pp. 32.

An Essay on the Nature and Uses of Natural Spas. By J. Aldridge, M.D., M.R.I.A. (Pamphlet.)

On the Pathology of the Articular Cartilages. By T. Bryant, F.R.C.S., Assistant-Surgeon to Guy's Hospital. (Pamphlet.)

The Nature and Treatment of Cancer. By George Southam. (Pamphlet.) London, 1858, pp. 47.

Clinical Lecture on the Treatment of Anthrax by Pressure. By Dr. O'Ferrall. (Pamphlet.) Dublin, 1858.

Silver Sutures in Surgery. By J. Marion Sims, M.D. (Pamphlet.) New York, 1858, pp. 79.

The Immediate Principles of the Human Excrements in Health. By W. Marcet, M.D., F.R.S. (Pamphlet.) 4to.

A Few additional Suggestions with a view to the Improvement of Hospitals. By Mr. John Roberton. (Pamphlet.) pp 26.

INDEX TO VOL. XXVII.

PAGE

Aconite as a preventive of rigor on passing the catheter . . 175
Adams, excessive dilatation of the blood-vessels in the leg . 189
on rheumatic gout 259
on subcutaneous surgery 282
Æsthesiometer, on the 59
Ague and consumption, antagonism of 37
Ague upon the urine, effects of 37
Albuminuria in fever, on 102
Alcohol and tobacco, on the physiological effects of . . 356
Alison on the chest-goniometer 89
Amyloid degeneration of the liver in yellow fever . . 20
Anæsthetics, advantages of an apparatus for inhaling . . 135
André, results of tracheotomy in croup 76
Aneurism of the a. innominata treated by pressure on the distal side . 297
Anus, modification of the operation for imperforate . . 234
Aphthous fungus on a woman's nipple 229
Apoplexy in children 229
Apoplexy, to what degree is the mind affected in . . 52
Aran on laudanum dressings in painful affections of the uterus . 217
Arcus senilis, on 268
Arnott on the painless extirpation of cancerous growths . . 125
Asthma, on local influences in spasmodic 87
Atlee, trachea ruptured by a fall 159
Aveling on the excitation of fœtal movements by cold . . 201

Bader on a peculiar disease of the retina . . . 149
Barker on intra-uterine fractures 207
on the influence of sewer-emanations . . . 7
Barnes on the use of lactate of zinc in epilepsy . . . 66
Beale on urine, urinary deposits, and calculi . . . 279
Béhier on the value of the tests for sugar in urine . . 103
Behrend on the medicinal use of sugar 357
Belcher on starch-mucilage as an application in acute skin disease . 121
Belladonna, on the action of alkalies upon . . . 353
Bennet on hæmorrhage in early pregnancy . . . 204
Bernard on variations in colour of the venous blood . . 323
Berthé on pepsine lozenges 360

PAGE

BIGG, a new polyptome 134
Bladder, on the reciprocal sympathies between the uterus and . 307
Blood-corpuscles, on certain pathological characters of . . 324
Blood in the horse, on the effects of transfusion of . . 343
Blood, on the coagulation of the 316
Blood, on variations in colour of venous . . . 323
BLYTHMAN, secretion of milk arrested by belladonna . . 214
Bones, on bending and partial fractures of the long . . 131
Bowel in which paracentesis was performed, sequel to a case of obstruction of 100
BOWMAN on the treatment of lachrymal obstructions . . 292
Brain, on abscess of the 271
BRESLAU on steel injections in menorrhagia . . . 221
BRIGUET on the absorption of medicated enemata . . 357
BROADBENT on the after-treatment of operations . . 133
BROWN on the injurious effects of underground kitchens . . 6
cases of vesico-vaginal fistula . . . 224
Brucia, on the physiological action of . . . 328
BRYAN on cannabis indica as a diuretic . . . 354
BRYANT on the causes of death after lithotomy . . . 177
BUDD on sugar as an article of diet in saccharine diabetes . . 105
BURD on sugar as an article of diet in saccharine diabetes . . 105

Cæcum, on inflammation of the 98
Cæsarian section, case of 213
Calcis by a new method, excision of os . . . 195
CAMPS on diphtheria 231
Cancer, "nest-cells" in epithelial 122
Cancer, on the painless extirpation of . . . 125
Cannabis indica as a diuretic 354
Cataractous-eye-compressor, the 151
Cattle, evil results of over-feeding 280
Cerebral hæmorrhage, on facial paralysis in . . . 58
Cervical glands, on the treatment of suppurated . . 160
Chest-goniometer, the 89
CHISHOLM, a new bandage for fractured clavicle . . 161
Cholera infantum, on 233
Chorea, on the treatment of 75
CHRISTISON on the changes in the constitution of fever during the last forty years 248
CLARK on "nest-cells" in epithelial cancer . . . 122
Clavicle, a new bandage for fractured 161
COCK, sequel to a case of trephining for rupture of the meningeal artery 137
COCKLE on the antagonism of ague and consumption . . 37
Cod-liver oil, on 85
Cod-liver oil, medicated or not, in capsules, of . . . 358
Colon was opened, two cases in which the . . . 167
Consumption and ague, antagonism of 37
Consumption, on the specific treatment of . . . 83
Convulsions, on the pathology of 60
COOPER, dislocation of crystalline lens 140
case in which a foreign body was removed from beneath the heart 164

PAGE

COOPER, sequel to a case in which paracentesis of the bowel was performed 100
CORFE on sugar as an article of diet in saccharine diabetes . . 105
CORNAZ on micropia from the application of belladonna . . 152
Cornea, rare form of inflammation of 145
CORRIGAN on the use of quinine in asthenic pneumonia . . 77
COTTON on the specific treatment of consumption . . 83
COULSON on lithotritic instruments in cases of enlarged prostate . 178
CRITCHETT, new operation for artificial pupil . . . 148
a new method of treating glaucoma . . . 288
Croup, tracheotomy in 76
Crystalline lens, dislocation of 140
CURLING, two cases in which the colon was opened . . 167

DAVIES, modification of the operation for imperforate anus . . 234
DAVIS on the treatment of phthisis by "special exercises" . 82
DEMARQUAY, illustration of a source of animal heat . . 326
DEVERGIE, advantages of an apparatus for inhaling anæsthetics . 135
Diabetes, on sugar as an article of diet in saccharine . . 105
Diabetes," on "surgical- 117
Diarrhœa, guarana in chronic 101
Diphtheria, on 231
Dislocation, resection in compound 130
Distemper from animals to man, propagation of the . . 34
Diuresis occurring in acute renal dropsy . . . 103
Drainage and water-supply on public health, influence of . . 14
Dropsy, diuresis occurring in acute renal . . . 103

EDWARDS, aneurism of the innominata treated by pressure on the distal side 297
Elbow, division of the tendon of the triceps in old dislocation of . 187
Elbow-joint, a new splint for excision of the . . . 184
Elephantiasis and leprosy, coexistence of . . . 43
Elephantiasis and fever, connexion between . . . 44
ELSASSER on menstruation during pregnancy . . . 201
Emphysema, on abdominal subcutaneous . . . 171
Enemata, on the absorption of medicated . . . 357
Epidemic diseases, on the study of 3
Epidemics investigated by experiment . . . 1
Epiglottis, on lesions of the 159
Epilepsy, on the use of oxide of zinc in . . . 62
Epilepsy, lactate of zinc in 66
Epilepsy, phosphate of zinc in 67
Epilepsy in which tracheotomy was performed, case of . . 67
Epileptic fit after tracheotomy, death in an . . . 74
ERICHSEN on "surgical diabetes" . . . 117
on excision of os calcis by a new method . . 195
Excrements in health, on the immediate principles of the . . 340
Excrements in disease, on the immediate principles of the . . 335
Eye, and enlargement of the thyroid gland, protrusion of the . 143

Facial paralysis, effect of galvanism upon the hearing in . . 58
FARRALL on the effects of transfusion of blood in the horse . .

PAGE
Fatty degeneration, on idiopathic 268
Fergusson on division of the tendon of the triceps in old dislocation of the elbow 187
Fever, on the etiology of continued 16
Fever characterised by erythematic pharyngitis . . . 21
Fever, on the connexion between elephantiasis and . . 44
Fever, on albuminuria in 102
Fevers during the last forty years, on changes in the constitution of . 248
Fibrine of the blood, its significance in disease . . . 242
Field on the nitrate of the oxide of glycyl . . . 346
Fincham on the treatment of acute inflammation . . 30
Flat feet, on pains and weariness of the limbs in persons having . 188
Flint on the arrest of pulmonary tuberculosis . . . 78
Fœtal movements by cold, excitation of . . . 201
Fœtus, on the effect upon the mother of poisoning the . . 336
Fractures, on intra-uterine 207
Friedrich, a peculiar case of leukhæmia . . . 91
Fuller on glonoin 346

Gant, evil results of over-feeding cattle . . . 281
Galvanism, on the obstetric use of 313
Garrod on the action of alkalies upon henbane, &c. . . 353
Gastro-cutaneous fistula, case of 95
Gibb on pertussal glucosuria 104
Gibbs, pregnancy where menstruation had been absent for several years 202
Glaucoma, on some points in the pathology of . . . 146
Glaucoma, a new method of treating 287
Glonoin, or nitro-glycerine, on 346
Glucosuria, on pertussal 104
Goddard, case where uterus had been removed thirty years previously 223
Gout, on rheumatic 259
Green on lesions of the epiglottis 159
Greenhalgh, case of Cæsarian section . . . 213
Greenhow on the study of epidemics 3
Grenzer, turning by external manipulation . . . 213
Guarana in chronic diarrhœa 101
Gull on abscess of the brain 271

Habershon on purpura and its connexion with splenic disease . 265
Hæmorrhage in early pregnancy 204
Hamilton on resection in compound dislocation . . 130
on bending and partial fractures of the long bones . 131
Hammond, effects of ague and quinine upon the urine . . 37
on the physiological effects of alcohol and tobacco . 356
effects of injecting urea, &c., into the blood . . 331
Hare on moveable kidneys 118
Harley on the histology of the supra-renal capsules . . 332
on glonoin 346
on the physiological action of strychnia and brucia . 328
Hearing in facial paralysis, effect of galvanism upon the . . 58
Heart, on seventy cases of hypertrophy of . . . 93
Heat, an illustration of the source of animal . . . 326
Heath, a new splint for excision of the elbow-joint . . 184

PAGE
Hemiplegia, to what degree is the mind affected in . . 52
Henbane, on the action of alkalies upon . . . 353
HENNESSEY on certain pathological characters of blood-corpuscles . 324
Herpes circinatus treated by Kameela 121
HERPIN on the use of lactate of zinc in epilepsy . . . 66
HERVE on guarana in chronic diarrhœa . . . 101
HEWITT on coagula in the veins of puerperal women . . 227
HOLTHOUSE on squinting, paralytic affections of the eye, &c. . 285
HULKE on glaucoma 146
HUMPHREY on excision of knee-joint 194
HUTCHINSON on the application of powdered chlorate of potass to ulcers 130
Hydrocele, a new operation for 181
Hydrocephalus treated by puncture 55
Hydrophobia, hysteria simulating 62
Hygiène, on 241

Iliac, some statistics of ligature of external . . . 174
Inflammation, on the early stages of 25
Inflammation, on the treatment of acute . . . 30
Inflammation, on the nature and treatment of . . . 32
INMAN on the treatment of chronic rheumatism . . . 41
on so-called hysterical pain 217
on the fibrine of the blood and its significance in disease . 242
Innominata treated by pressure on the distal side, aneurism of the . 297
Insane, on the general paralysis of the 56
Insanity in penitentiaries, on 49
Iridectomy, on 149

JACKSON on amyloid degeneration of the liver in yellow fever . 20
JOHNSON on albuminuria in fever 103
on diuresis occurring in acute renal dropsy . . 103
JONES on sugar as an article of diet in saccharine diabetes . . 105
on iridectomy 149

Kameela as an external application in herpes circinatus . . 121
Kidneys, on moveable 118
Kitchens, injurious effects of underground . . . 6
Knee-joint treated by iodine injections, hydrarthrosis of . . 193
Knee-joint, on excision of 195
KÖLLIKER on a new remedy for palpitation . . . 93
on the Tanghinia venenifera 359
on Upas antiar 330
KRAUSE on the propagation of the distemper from animals to man . 34
KÜCHENMEISTER on aphthous fungus on a woman's nipple . . 229

Lachrymal obstructions, on the treatment of . . . 292
Lactation, injurious effects of chalybeate waters upon . . 214
LANDOUZY on the action of galvanism upon the hearing in facial paralysis 58
LAWRENCE, case of hydrocephalus treated by puncture . . 55
rare form of inflammation of the cornea . . 145
LEE, the subcutaneous operation for varicose veins . . 191

PAGE

LEE on the membrana decidua surrounding the ovum in tubal gestation 199
on the speculum 307
Leprosy and elephantiasis, coexistence of . . . 43
Leukhæmia, a peculiar case of 91
LINAS on the general paralysis of the insane . . . 56
LISTER on the early stages of inflammation . . . 25
Lithotomy, on the causes of death after . . . 177
Lithotritic instruments in cases of enlarged prostate, on . . 178
Liver in yellow fever, on amyloid degeneration of . . . 20
LOBB on obscure nervous affections 275
LONG on the use of aconite for preventing rigor on passing the catheter 175
treatment of ingrowing toe-nails . . . 197
Lymphatic glands, a form of acute inflammation of . . 124

MACDONNELL, hydrarthrosis of knee-joint treated by iodine injections 193
MACKENZIE on iridectomy 149
on the obstetric use of galvanism . . . 313
MARCET on the immediate principles of the excrements in health . 340
on the immediate principles of the excrements in disease . 335
Margosa tree, on the "Neem" or 355
MARTIN, injurious effects of chalybeate waters upon lactation . 214
MARTYN on the functions of the thyroid body . . . 333
M'CREEDY—to what degree is the mind affected in apoplexy and hemiplegia? 52
Medicine, on unity of 280
Menorrhagia treated by iodine injections . . . 219
Menorrhagia treated by steel injections . . . 220
Menstruation during pregnancy 201
Menstruation absent several years, pregnancy after . . 202
M'GUGIN, case of hysteria simulating hydrophobia . . 62
Micropia from the application of belladonna . . . 152
Milk arrested by belladonna, secretion of . . . 214
Milk, animal substitutes for mother's 215
MILLIKIN, a new polyptome 134
Mind in its relation with the brain and nervous system . . 277
Mitral orifice, impaction of a clot in a contracted . . . 94
MONTGOMERY on the reciprocal sympathies between the uterus and bladder 307
MOORE on Kameela as an external application in herpes circinatus . 121
MOSLER, effects of water-drinking upon the metamorphosis of the system 327
MURCHISON on the etiology of continued fever . . . 16
case of gastro-cutaneous fistula . . . 95
Murrain, on the 35

"Neem," or margosa tree, on the 355
Nervous affections, on some obscure 275
Neuralgia, on intercostal 88
NICHOLS on the use of quinine in intermittents, without "preparatory measures" 40
NICHOLLS on intercostal neuralgia 88
NIÉMYER on the treatment of pneumonia and pleuritis by cold applications 77

PAGE
Nipple, aphthous fungus on the 229
Noble on the human mind 279
Notta on the actual cautery in white swelling . . . 128

Obstetric medicine, manual of 302
Obstetric use of galvanism, on the 313
O'Ferrall on subcutaneous abdominal emphysema . . 171
Ogle, a case of epilepsy in which tracheotomy was performed . 67
Oldham on hernia of the ovary, with periodical enlargement of the organ 338
Operations, on the after-treatment of 133
Orbit, on cysts in the 142
Ormerod, death in an epileptic fit after tracheotomy . . 74
Oulmont on obliteration of the superior vena cava . . 163
Ovary with periodical enlargement of the organ, hernia of . . 338

Paget, a form of acute inflammation of lymphatic glands . . 124
on enlarged tonsils 157
on the treatment of suppurated cervical glands . . 160
on pains and weariness in the legs of persons having flat feet . 188
Pain, on so-called hysterical 217
Palpitation, on a new remedy for 93
Paralysis of the insane, on the general . . . 58
Parker on cholera infantum 233
Pelikan on Upas antiar 330
on the Tanghinia venenifera . . . 359
Pepsine lozenges, on 360
Percussion-hammer, a new 89
Perrin on difficult breathing in scorbutus . . . 42
Phthisis treated by "special exercises" . . . 82
Pickford on hygiène 241
Pneumonia and pleuritis, cold applications in . . . 77
Pneumonia treated by quinine 77
Poland on cysts in the orbit 142
on enlargement of thyroid gland and protrusion of the eye . 143
Polyptome, a new 134
Pregnancy, on menstruation during 201
Pregnancy, on hæmorrhage in early 204
Presentations, on cross- 208
Prostate, on enlarged 299
Pulmonary tuberculosis, on the arrest of . . . 78
Pupil by galvanic cautery, formation of artificial . . 140
Pupil, new operation for artificial 148
Purgatives, on the abuse of 98
Purpura and its connexion with splenic disease . . . 265

Quinine upon the urine, effects of 37
Quinine in intermittents, advantage of large doses of . . 40
Quinine without "preparatory measures" in agues, use of . . 40

Radcliffe on the use of oxide of zinc in epilepsy . . 62
Ranke, effects of ague and quinine upon the urine . . 37
Responsibility, on the legal doctrine of 48

PAGE

Retina, a peculiar disease of the 149
Reynolds on the pathology of convulsions . . . 60
Rheumatic gout, or chronic rheumatic arthritis . . . 259
Rheumatism treated by large doses of opium . . . 22
Rheumatism, treatment of chronic 41
Richardson, investigation of epidemics by experiment . , 1
on coagulation of the blood . . . 316
Rochester on epidemic fevers with erythematic pharyngitis . 21
Rogers on inflammation of the cæcum, and the abuse of purgatives . 98
Routh on animal substitutes for mother's milk . . . 215

Salter on local influences in spasmodic asthma . . . 87
Savage on iodine injections in menorrhagia . . . 219
Savory, the effect of poisoning the mother upon the fœtus . . 336
Sauze on insanity in penitentiaries 49
Scapula, excision of entire body of 162
Scarlatina, on the eruption of 19
Scorbutus, on difficult breathing in 42
Séminales, on the treatment of pertes 176
Sewer-emanations, on the influence of 7
Short on the advantage of large doses of quinine in intermittents . 40
Shoulder-joints, simultaneous dislocation at both . . . 182
Sibson on large doses of opium in acute rheumatism . . 22
Sieber on the medicinal use of sugar 357
Sieveking on the æsthesiometer 59
Simonds on the murrain 35
Skin diseases, starch-mucilage as an application in acute . . 121
Smith on the use of cod-liver oil, &c. 85
inversion of uterus of twelve years' standing rectified . 218
on obstetric medicine 302
Snow on the influence of drainage and water-supply . . 14
Solly on the treatment of pertes séminales . . . 176
Solomon on the cataractous-eye-compressor . . . 151
Spaeth on cross-presentations 209
Speculum, on the 307
Splenic disease, purpura and its connexion with . . . 265
Squinting, paralytic affections of the eye, &c. . . . 285
Starch-mucilage as an application in acute skin diseases . . 121
Stewart, effects of ague and quinine upon the urine . . 37
Storer, cupping of the interior of the uterus . . . 221
Stramonium, action of alkalies upon 353
Streatfeild on the treatment of tinea ciliaris . . . 143
on discoloration of the conjunctiva with nitrate of silver 144
Strychnia, on the physiological action of . . . 328
Supra-renal capsules, on the histology of . . . 332
Sugar in urine, on the value of the tests for . . . 103
Sugar, on the medicinal use of 357
Surgery, on subcutaneous 282

Tanghinia venenifera, on the 359
Tavignot, formation of artificial pupil by galvanic cautery . . 140
Thompson on enlarged prostate, &c. 299
Thyroid body, on the functions of 333

PAGE

Tinea ciliaris, on the treatment of 143
Tobacco and alcohol, on the physiological effects of . . 356
Toe-nails, treatment of ingrowing 197
Tonsils, on enlarged 157
TOYNBEE on anchylosis of the stapedio-vestibular articulation . 155
Trachea ruptured by a fall 159
Tracheotomy in croup, results of 76
Transfusion of blood in the horse, on the effects of . . 343
TROUSSEAU on the eruption of scarlatina . . . 19
on facial paralysis in cerebral hæmorrhage . . 58
on the treatment of chorea . . . 75
Tubal gestation, on the membrana decidua in . . . 198
Turning by external manipulation 213

Ulcers, application of powdered chlorate of potass to . . 130
Upas antiar, on 330
Urea, &c., into the blood, effects of injecting . . . 331
Urine, urinary deposits, and calculi, on 279
Uterus, laudanum dressings in painful affections of . . 217
Uterus, of twelve years' standing, rectified, inversion of . . 218
Uterus, cupping of the interior of the 221
Uterus was removed thirty years previously, case where the . . 223
Uterus and bladder, on the reciprocal sympathies between . . 307

VAN DER BYL on hypertrophy of the heart . . . 93
impaction of a clot in a contracted mitral orifice . 94
VAN BUREN, simultaneous dislocation at both shoulder-joints . 182
Varicose veins, the subcutaneous operation for . . . 191
Veins of puerperal women, on coagula in the . . . 227
Vena cava, obliteration of the superior . . . 163
VERNON, a new percussion-hammer 89
Vesico-vaginal fistula, cases of 224
VILLARDS, a new operation for hydrocele . . . 181

WALTER, excision of entire body of scapula . . . 162
WALTON, vascular tumour of the orbit treated by injection of tannin . 141
WARING on the coexistence of leprosy and elephantiasis . . 42
on the connexion between elephantiasis and fever . . 44
on the "neem" or margosa tree . . . 355
Water-drinking upon the metamorphosis of the system, effects of . 327
Water-supply on public health, influence of . . . 14
WELLS on the administration of cod-liver oil in capsules . . 358
White-swelling, on the actual cautery in . . . 128
WILKES on idiopathic fatty degeneration and arcus senilis . . 268
WILLIAMS on sugar as an article of diet in saccharine diabetes . 105
WINSLOW on the legal doctrine of responsibility . . 48
WOOD on ligature of external iliac 174
WYTHES, cases of infantile apoplexy 229

Zinc in epilepsy, on the use of oxide of . . . 62
Zinc in epilepsy, on the use of lactate of . . . 66
Zinc in epilepsy, on the use of phosphate of . . 67

WELLCOME LIBRARY INSTITUTE

PRINTED BY J. E. ADLARD, BARTHOLOMEW CLOSE.